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Table of Contents

	PAGE.
A Year of Unusual Activity in the U. S. A.	5
View of Dinner American Paper and Pulp Association	6
View of Dinner National Paper Trade Association	10
A Year of Eventful Conditions in England	19
Abitibi Company Makes Big Improvements	21
Manufacture of Paper in France Shows Decrease	23
Quebec and Maritime Provinces are Busy	26
New Sulphite Mill of Mattagami Pulp and Paper Co., Ltd.	35
Donnacona Paper Company, Ltd.	39
Pulp and Paper Work During the Year of the Forest Products Laboratory	43
Kalamazoo Has Prosperous Year	49
New Soda Pulp Mill at Kingsport, Tenn.	51
Forestry and Forest Product for Pulp	53
Ha! Ha! Bay Paper Mill	57
The Paper Trade in the Sixty-fourth Congress	57
St. Maurice Builds Paper, Sulphite and Kraft Mill	63
Hearing on Tour Workers' Bill	75
Stamped Envelope Prices Higher	75
Electric Motor Application to Paper Machinery	97
Production of Methyl Alcohol from the Spent Liquors of the Soda Pulp Process	109
Bleaching of Groundwood Pulp	119
Oswego Falls Pulp & Paper Co. Makes Big Improvements	121
Cotton Rope for Power Transmission	131
Baled Pulpwood Chip	141
Uniform System of Accounting	147
Canadian Paper and Pulp Association Meet	161
Hemlock May Be Good Substitute for Spruce Pulp	163
Safety Section Has Big Meeting	165
Efficient Lighting in Paper Mills	167
Relation of Accident Prevention to Compensation Insurance Cost	171
Miniature Sulphate Plant at Stamford	173
Latest Extension to Crown Willamette Paper Co.	211
Jobbers in Convention	211
Coarse Paper Division Meets	211
Meeting of Fine Paper Division	235
General Meeting National Paper Trade	243
To Consolidate International Indebtedness	257
New Rex Mill Making History	259
National Paper Trade Banquet	261
Riverview Coated Paper Co. Erects Modern Mill	267
News Print Prices in Canada	273
American Paper and Pulp Banquet	275
United States Paper Laboratories	303
A History of Paper Making in the United States	315
Paper Making in Great Britain in 1916	333
Making Rosin Size	339
World Buys High Falls Pulp & Paper Co.	343
Western Mills on Three Tour System	343
Relative Efficiency of Box Board	345
Eastern Mfg. Co.'s Improvements	353
Paper Mills on Pacific Coast Busy	357
Big Developments in Toronto District	359
Kalamazoo Vegetable Parchment Co.'s Model Mill	361
Imports and Exports	366
Practical and Technical Questions and Answers	373

Editorial:

This Issue	342
The Break With Germany	342
Paper Mill Accidents in Canada	342
Another Prophet Without Honor	342

Obituary:

Arthur E. Wright	355
Charles H. Usher	355

Index to Advertisements on Page 375

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A YEAR OF UNUSUAL ACTIVITY

A Look Back Over the Leading Events and Market Changes in the Paper and Pulp Industry in 1916. High Prices the Main Feature

Prosperity in Most Lines of Industry Has Grown to Be of Unprecedented Character, with Demand Greatly Exceeding the Supply in Many Lines of Paper—Unusual Condition Has Caused Consumers to Be Less Particular About Detail and More Inclined to Be Satisfied with What the Mills Offer—Investigation of the News Print Industry Among the Most Interesting Activities.

The year 1916 will be memorable in the history of the trade not only because it marked a period of unprecedented prosperity, but also because during its twelve months were wrought many changes which, it is believed, will have a far-reaching effect on general conditions in the future. One tradition after another has been upset until now, it has become evident that the only way to cope with the situation is by a careful study of the present, without any regard to what has gone before. Methods of buying, including finished papers as well as raw materials have been revolutionized and the old ideas regarding seasons have been literally smashed to bits.

Trade Readjusts Itself

In reviewing the period from the beginning of the war to the end of 1915, the remarkable feature is the manner in which trade had readjusted itself from a period absolutely devoid of interest and profits to a normal state and then gradually to the stage where the demand greatly exceeded the supply. It was considered at the time extraordinary that such a condition could exist. So tense was the interest in activities and so vital was its influence that it became an international question. It became apparent that there was a world famine of raw and finished products and that almost invariably the highest bidder would receive the preference.

If the events of the past year have done nothing more, they have placed the market on a stable basis, something that has not hitherto existed. Such is the opinion of a majority of the best informed manufacturers. They reason that the fact that the plants throughout the country have practically all adopted the three-tours system of employing mill workers will, in itself, make low prices for paper a thing of the past. This increase in expense is said to mean an added cost of one cent or more per pound of paper over the former figure, dependent, of course, on the kind and grade of paper being made. It is also predicted by many authorities that paper stock, when it seeks a normal level, will find it considerably higher than that to which the trade was accustomed a few years ago.

A Prosperous Year

Despite all of the trials to which the trade was subjected, the fact that almost every concern making or handling paper to a fairly large extent was able to pay handsome dividends during the past year is significant. Paper securities have never brought the prices paid for them within the past six months. Concerns that have never been known to operate profitably have not only paid off heavy mortgages and other forms of indebtedness, but have also paid generous profits to their stockholders.

For a while it seemed to be a craze to buy paper and pulp mills. Plants that had been idle for years were renovated and re-equipped and sold without trouble. Probably more new companies were formed during the past year than during any previous similar period. Enormous sums of money have been spent in the installation of new machinery and other devices for increasing production.

Perhaps the strangest feature of the year is the change in the status of the board manufacturing industry. This branch had always been regarded as the least profitable of any. In fact, it was known that the largest concerns in this line had been in difficulties of many sorts for a number of years. It was almost as common a sight to see a board mill idle as to observe one operating at capacity. During the past year, however, so great a premium had been placed upon this product and so incessant has been the demand that a board mill has become recognized as a most profitable form of investment.

Attention Turned to Cost Accounting

It is interesting to note that the uncertain conditions prevailing during the year have compelled the closer attention of the mills to the subject of cost accounting, a fact that is of more than ordinary importance. Freight congestions and other similar influences often made it necessary for a manufacturer to buy in the open market, even when he was well covered by contract, for supplies of raw materials. Then there were other concerns who, not being protected, were forced to seek the open market rather frequently, each time paying a different price for stock—generally a higher price. At first a good many mills resorted to the plan of advancing prices without proper research. However, it soon became apparent that this scheme was far from practical and that the best possible formulated accounting systems were indispensable. This idea was encouraged by a number of the trade associations which hired experts to originate standardized methods of cost accounting. A splendid report along this line was rendered by a committee of the Wrapping Paper Manufacturers' Association. The principle embodied in this report was not that every concern should have the same system of accounting, but that there should be a standard method for charging the various items in the company's business. This tended toward the elimination of false impressions created by a cost system which was not properly kept. The News Print Manufacturers' Association has a similar body considering the cost accounting plan, and work of the same sort is also being carried on by the American Paper and Pulp Association. Manufacturers believe that this movement is of inestimable value to the

FORTIETH ANNUAL BANQUET OF THE AMERICAN PAPER AND PULP ASSOCIATION AT THE WALDORF-ASTORIA,

THURSDAY EVENING, FEBRUARY 8—MOST LARGELY ATTENDED ANNUAL DINNER IN ASSOCIATION'S HISTORY.

trade and feel that the interest which has just been aroused will continue to develop.

Standardization of Writing Paper

The standardization of writing papers under substance numbers will stand out as one of the important measures of the year. This plan provides for the elimination of many wastes formerly sustained by the manufacturer of writing papers. It is said that it is about to be adopted also by the book men. Where previously mills, in competition, were accepting all sorts of specifications, just to keep their machines operating, the scheme of substance numbers furnished the description of the papers which are made by all of the concerns in this line. This makes it possible for a manufacturer to run on certain papers for a fair length of time without suffering the expense of continually changing off on to "something new."

The many difficulties encountered the past year must surely have impressed themselves on manufacturer, jobber and consumer. For the mill men, the question of raw materials was at no time a certain one—even when they were apparently protected by the most desirable sort of contracts. Numerous factors entered into the market, making it impossible for the reputable supply houses to take care of their obligations after their usual fashion. When a mill was being worked at its capacity, endeavoring to catch up with orders to keep it going for several months, such a situation was very serious, especially in the instance of the plants which were not well stocked.

Situation Not Pleasant for Jobbers

Very few jobbers found the "matters" altogether pleasant. They were unable to solicit business because they were in no position to take it. In the first place they could not guarantee shipment, no matter how liberal the terms were. Then again, if a deal had been concluded at a certain price, a notice might be received from the manufacturer, and it usually was, stating that quotations had been advanced. For a while jobbers and mill agents were simply compelled to refer everything to the manufacturer for acceptance. During the period when conditions appeared most precarious some mills refused to take orders at any specified figure. Their terms were that the price prevailing at the time of shipment should be the basis for the invoice.

Consumers Take What They Can Get

One thing is worthy of particular note. Aside from the standardization of writing papers, already referred to, the circumstances of the past year have tended to eliminate a good many unusual specifications which formerly were a source of irritation to the manufacturer. It is natural that when a mill has plenty of substantial business it should not care to inconvenience itself by pleasing the whims of the consumer. The result has been that the consumer has been quick to realize it was not advisable to endeavor to deviate from the recognized path, and that it was wise to take what could be had. This was especially true in the case of colored papers. Heretofore the consumer ordered a different tint every time he became inspired with a new fancy—the "nearest thing" would never do. Now, however, it was learned that even the "nearest thing" was not always available, that one was often fortunate to get anything at all.

The acuteness of conditions throughout the year is well emphasized by the dealings of the government with the mills. Many concerns which had bound themselves by contracts secured through keen competition suddenly found themselves confronted with the prospects of fulfilling their obligations at a considerable loss. A number of manufacturers made unsuccessful attempts to hedge; others tried to induce the Washington officials to pay sufficient increase to cover the exact cost of production. Later the government found itself in a quandary. The mills refused to compete for the various Federal contracts. In fact, it was difficult to get manufacturers to consider this business, when they could get much more for their goods in the open market. Several instances have been recorded where, after having called for bids for paper contracts, department heads have cancelled them because they were too high for consideration.

Trade Subjected to Much Publicity

Never before has the trade been subjected to so much publicity, practically all of it unfavorable, as it has been during the past year. Despite the fact that raw materials of every kind were being held for twice and often three times as much as their normal value, the trade was condemned by the press for advancing, in proportion, the price of its finished products—because the publishers were directly affected. Of all the industries which were compelled to adjust themselves to circumstances by asking higher prices, the manufacturers of paper were the only ones selected to answer for this necessary step. The affairs of the news print men especially were inquired into. However, it was generally realized that the other branches were on the rack at the same time, for if it had been possible to prove that the news print manufacturers were guilty of illegal conduct, it is altogether likely that investigations would have disturbed every mill in the country. As it is, there is still no certainty as to what the government probing will evolve itself into.

News Print Investigation

The famous investigation of the news print industry was begun as a result of an invitation coming from George F. Steele, secretary of the News Print Manufacturers' Association. This invitation was prompted by many unjust statements appearing in the press, as well as a number of unpleasant insinuations on the part of certain members of Congress. The news print manufacturers offered every help to the Federal Trade Commission, which conducted the investigation, furnishing it with all sorts of statistics and attending numerous conferences which it called. The work has been in progress since May, with a view to insuring a supply of paper for all of the publishers of the country at a reasonable rate. Up to this writing, however, nothing material has been accomplished.

Many resolutions were presented in Congress at different times by representatives from some of the smaller districts of the country, offering all sorts of remedies for the solution of the critical situation confronting the industry, but none of these were ever given more than passing consideration. One bill asked to have an embargo placed on the export of paper, believing that by eliminating the export trade it would be possible to take proper care of the domestic needs. Perhaps the most serious reflection of the situation is the proposal that the government build its own mill, at a cost of about $1,000,000, and thus insure for itself a proper supply of news print, at the same time providing itself with a barometer for gauging the actual conditions prevailing in the markets. It is understood that this plan, which has not yet been disposed of, is favored by quite a number of the Congressmen.

Big Advance in Chemical Pulp

Chemical pulps have risen in price beyond the boldest predictions made at any time since matters became acute. Throughout the year the demand far exceeded the supply, and despite the fact that each time the market moved it reached a figure never before believed to be possible, this was merely a preliminary for a new record which was about to be set. Conditions were rather stringent at the beginning of January, 1916, but they were made much worse by the latter part of that month by the news that Sweden had placed an export embargo on chemical pulp. As might have been expected, the receipt of this news was followed by all sorts of wild scrambling, not only on the part of the mills, but also by the dealers. Many mills still had contracts with Scandinavian concerns at the old prices. These contracts would be of no value in the event that the Swedish government forbade the export of pulp. The anxiety of the American paper manufacturers was soon re-

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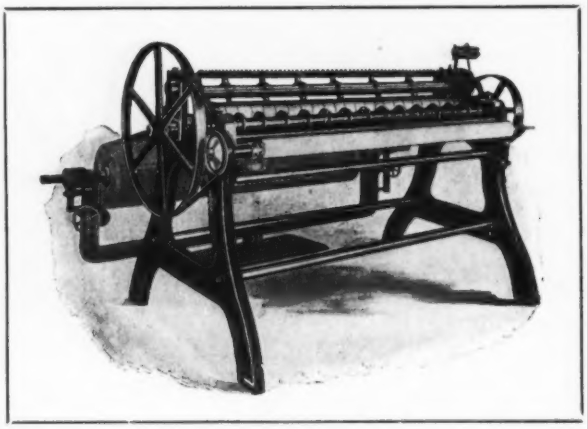

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ROLLS CAN BE MADE WITH OR WITHOUT PERFORATIONS.

The change necessary for making SANITARY CRÊPE PAPER TOWELS on above machines can be made in less than an hour's time. For very hard rolls of crêpe toilet rolls or crêpe paper towel rolls, machines can be equipped with Drum Winding Attachment.

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lieved by the news that it would be possible to obtain licenses granting export shipments. However, it developed that this was merely in the nature of a guise. Foreign pulp producers had been suffering considerably from the increasing costs of raw materials, from labor troubles, and from other sources, and they were beginning to show an unwillingness to continue sustaining losses on old contracts. Various plans were resorted to in order to bring old quotations up to a higher scale. For example, a number of the producers asked that the consumers pay the difference between the price that had been agreed upon and the new cost of manufacture. In the event that a paper mill would not comply with such a request, it soon became known that the pulp concern had not been able to secure a license permitting the export of the goods in question.

Foreign Sources of Supply Cut Off

As has been explained time and again, the chief cause for the situation in the chemical pulp market was the fact that important foreign sources of supply had been completely eliminated. Aside from Canada, which we are not inclined to consider as foreign, the only countries we could look to for pulp were Norway and Sweden. If these countries had been able to ship us their entire production, history would have a very different story to tell. However, this is where the "hitch" lay. It was believed that Sweden's pulp embargo had been aimed at England, with which country she had had some friction. A little later Great Britain placed some restrictions on the import of pulp and paper products, largely to utilize better her ocean tonnage, but indirectly, it was intimated, to retaliate against Sweden's act. England then began to draw heavily on Norway. Hopes in the United States rose in the belief that the supplies which Sweden formerly sent to England (it was stated that the United Kingdom procured 90 per cent. of its sulphite from Sweden) would now find its way to the country. It was calculated that this pulp would accumulate on the Scandinavian docks during the period that navigation on the Baltic was impossible and that the coming of Spring would find the pulp producers in need of ready money, hence this stock would be dumped on the United States. But what occurred was a very different story. The demand for pulp from the European continent was great—all concentrated on Scandinavia. It was possible to get better prices from France and Germany and the other countries than the mills in the United States were willing to pay. Germany, it will be remembered, was formerly one of the world's greatest producers of pulp, and the fact that she was now bidding heavily for the production of Sweden was of pertinent significance. When the true situation became appreciated in this country, the paper manufacturers, inclined to be a little conservative, changed their tactics and began to get what stock was available—and accelerated the rising tendency of the market.

High Prices Also for Domestic Sulphite

Domestic sulphite has followed the course led by imported stock. It was natural, for finding that there was no certainty of being able to insure supplies of Scandinavian pulp, efforts were made to "cover" with domestic concerns. It is true that these mills operated at capacity to try to take care of the demand which had reached "unheard of" proportions, but there were other factors which did not allow this added tonnage to be felt in the market. A good many pulp mills are operated in conjunction with paper mills, and in normal times there is generally considerable surplus stock which can be bought by the trade. Now, however, with paper selling at ridiculously high prices and in urgent demand, it was found necessary by paper mills owning pulp plants to consume the largest part of what was ordinarily considered surplus. This was especially true of kraft pulps. Kraft became so scarce that few mills seemed willing to part with it, and a large tonnage which habitually found its way into the open market was retained for consumption by the controlling mill. A good many paper manufacturers looked to Canada for their supplies, and while her exports to this country have been increased by several thousand tons a month since the beginning of the war, this was not sufficient to ease matters more than a little. Then again, there was a time when it did not appear unlikely that England might requisition the Canadian production. It is a fact, however, that considerable pulp was actually shipped from Canada to Great Britain.

Steady Strong Demand for Sulphites

The continuous demand for paper has resulted in a steady and a strong demand for sulphites. Naturally there has been a tendency to substitute cheaper materials, but even this has not been able to "bear" the market. Today the market is firmer than it has ever been, with the prospects of going still higher in price. There is practically very little stock which is now available for the open market.

The most important government act affecting pulp, recorded during the past year, is the decision of the Interstate Commerce Commission declaring that the practice of various railroads at the ports, Newport News, Norfolk and Philadelphia, to grant free storage to imported pulp was illegal. It will be remembered that the foreign pulp producers have always taken advantage of this privilege and, when conditions were dull abroad, would ship large quantities of stock to one of these ports, on consignment to some dealer, and let it lie there. The presence of this stock, it is claimed has had a bearing effect on domestic pulp. It is said that it was this free storage privilege which was partly responsible for the way in which pulp values dropped after the war started.

Sulphite Prices for the Year

	Jan. 1, 1916. Cents.	Mar. 30, 1916. Cents.	Aug. 3, 1916. Cents.	Dec. 30, 1916. Cents.
Foreign bleached sulphite..	3½@ 5	5½@ 6	8½@ 9½	10 @11
Domestic bleached sulphite.	3¼@ 3¾	5½@	6¾@ 7	7¼@ 8
Foreign unbleached sulphite	2¼@ 2½	2¾@ 3½	5 @ 5½	5½@ 5¾
Domestic unbleached sulphite	2 @ 2½	3¼@	4 @ 4½	5¼@ 5½
Easy bleaching sulphite....	2½@ 3	3½@ 4	6 @ 6½	6 @ 6½
Krafts	3 @ 3½	3¾@ 4¼	5½@ 5¾	6½@ 7
Ground wool pulp.....	$14@16	$16@23	$19@22.50	$42@47

Surprising Advance in Ground Wood

The story of ground wood pulp for the past year has been amazing. This commodity working its way up from a figure of about $14 to $16 per ton, at the grinder's mill, to a stage where it was quoted at higher than $40 per ton, at the manufacturing point, and even at this price, was difficult to secure. Under normal conditions, the news print mills which operate their own grinding plants, generally had a fairly large surplus which was always available for the trade. However, when the consumption of news became such that it requisitioned "every pound" in stock and was eagerly seeking more, paper manufacturers found that they had less ground wood to offer. In many cases, it was apparent that the value of this pulp would almost treble itself which, of course, did not encourage those with stock on hand to place it on the market.

There can be no doubt that the situation in sulphite was also largely responsible for the rapid increase in price of mechanical pulp. For, as the price of sulphite became more prohibitive, the tendency on the part of paper manufacturers to substitute ground wood in its place became stronger. In fact, wherever ground wood would serve, in the emergency, it was used. For example, it is known that efforts were made by some concerns to eliminate sulphite in the making of news print—some of them, it is said, succeeded. In wrapping papers, many manufacturers found themselves compelled to resort to ground wood more freely, and even in tissue papers similar action was often found necessary. So, aside from the fact the regular consumers had materially increased their requirements, a healthy demand was visible from new sources.

As long as the sulphite situation continues acute, grinders are confident that there can be no awakening of any account in the status of mechanical pulp. At the same time, there is always the possibility of a loss in production, because of water power troubles

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Under circumstances like the present, this would make higher price inevitable.

Making History in Rag Market

The rag market started to "make history" during the early part of January, 1916, when word was received that England had placed an export embargo on rags. At this time, we had been receiving the largest part of our foreign supply of rags from Great Britain, which fact was found sufficient to cause alarm among a good many of the mills. Paper manufacturers who had been buying on a hand-to-mouth basis suddenly came into the market with the idea of buying large quantities of rags to be kept in stock. At about the same time, a number of dealers began to speculate in most reckless fashion. Dealers bought from one another, each succeeding sale being at a higher price than the one previous and each sale apparently setting "the market." While this state of affairs continued, it is understood that considerable stocks of rags were placed in storage, to make the shortage more acute and thus to put more pressure on the rising market. At one time, conditions had reached the stage where mills were forced to send inquiries to as many as a dozen and more concerns when they were in search of stock. This, it can readily be understood, helped materially in "boosting" quotations against the consumers, for instead of treating the inquiry as being for one order, it was regarded as twelve orders. All sorts of excitement ensued for some time.

Government Endeavors to Aid

During the early part of March, conditions had become so acute that many of the paper manufacturers appealed to the Government for aid. In response to this appeal, Secretary Redfield sent out to the housewives of the country the urgent request "to save your rags." It is doubtful whether any movement ever received so much publicity as did this one. It was featured in practically every newspaper and publication throughout the United States. The high prices which had been paid by a few mills were quoted to induce people to save their waste. In various cities the mills advertised in the newspapers, offering to pay certain prices for different grades of stock. Many instances have been recorded where paper manufacturers have sent their own wagons out among the country districts to collect rags and waste papers. In a few cases, some mills sought relief by establishing their own paper stock departments, thus making themselves independent of the dealer.

It is generally agreed that the campaign of the government to help the mills get plenty of paper stock was productive of material results. This is credited not so much to the thriftiness of the housewife, as to the fact that the existence of very high prices made it possible to ship stock from distant points not ordinarily regarded as a source of supply.

Rag Prices for the Year

The first week in April, the "bottom fell out of the market." It was evident that the stocks had been enhanced to the extent that there was no immediate fear. As a result, all of the intense interest in rags seemed to disappear. It was calculated that, because of the continued activity of the mills, they would not be able to stay out of the market any length of time and that another flurry was inevitable. But, by orderly buying and not trying to bid against one another, the consumers have been able to prevent any such condition from arising again. Within the past few months, this market has been showing to better advantage.

	Jan. 1, 1916. Cents.	Mar. 30, 1916. Cents.	Aug. 3, 1916. Cents.	Dec. 30, 1916. Cents.
New white shirt cuttings, No. 1	6 @ 6¼	14 @	9 @ 9¾	9½@10½
New white shirt cuttings, No. 2	3½@ 4½	9½@	6¼@ 7	6½@ 7
Old white rags	3½@ 3¾	9½@	6¼@	5½@ 6½
House soiled whites	2⅝@ 2⅞	8 @	4¼@ 4¾	4¼@ 4½
Thirds and blues	1⅞@ 2⅛	6¼@	3¾@ 4¼	2¾@ 3½
Roofing stock	½@ 1¼	3 @ 5	½@ 2¼	¾@ 2¼

To the dealers, bagging was somewhat of a disappointment. It was reckoned that when England placed an export embargo on bagging and rope, it would have the same effect on this market as the similar action had on rags. While rope was stimulated to some extent, bagging received little or no attention. By cautious buying, it was possible for the mills to keep this commodity from moving skyward. As a matter of fact, bagging has not shown much tendency to change. It is only recently that added strengthening has been visible. The interest in old manila rope has been more active and has "boosted" these goods to a more substantial level.

It is worthy of note that, under the first provisions of England's embargo, it was possible to export bagging and old rope to the United States, under license. However, by some sort of elimination process, stock used in the making of paper cannot obtain a license.

Waste Papers Have Good Year

Averaging the year, old waste papers enjoyed a rather successful period. Prices were slightly affected by the embargo prohibiting the export of paper stock from England. We had been receiving considerable stock from this source, hence the cause for a little anxiety. However, the upward movement of the market was gradual, until within the past few months, when an accumulation of factors resulted in a greater acceleration. Ordinarily, the chief consumers of waste papers are the board mills. These plants are not usually accustomed to running more than part time. The demand for boards, however, reached such proportions during the past year that it was far greater than the supply. This, of course, meant added interest in waste papers of certain grades. At the same time, other paper manufacturers were endeavoring to meet the difficulties in the pulp situation by reclaiming rags and sulphite from old paper stock. This resulted in a good demand for soft and hard shavings, together with many of the other grades. The same was true of old krafts, which were being reclaimed for kraft pulp, one of the most scarce articles in this part of the world.

Strong Price Tendency

Present indications are that waste papers will continue strong for some time, with the possibility of prices going still higher.

	Jan. 1, 1916. Cents.	Mar. 30, 1916. Cents.	Aug. 3, 1916. Cents.	Dec. 30, 1916. Cents.
Hard white shavings, No. 1	2¼@ 2¾	3¼@ 4	4 @ 4⅛	6½@ 6¾
Soft white shavings	2 @ 2¼	3½@	3½@ 3¾	5¼@ 5½
Magazine	1 @ 1¼	2¼@	1½@ 1¾	2½@ 2¾
Ledgers	1¼@ 1⅜	2¼@	1¾@ 2	3½@ 3¾
Old manilas	¼@ ¾	1 @ 1¾	¾@ 1½	1 @ 1¾
Krafts	1½@ 1¾	3 @ 3¼	2¾@ 3	3½@ 3¾
Overissue news	.55@ .60	1 @ 1¼	.85@ .90	1¼@
Mixed papers	.40@ .45	.80@ .90	.60@ .65	.80@ .85

Paper Prices Higher Than in Long Time

After a year of remarkable activity and prosperity, paper prices are today higher than they have been in a long time. Practically during the entire twelve months past, the demand for paper has been continuous, forcing into operation at capacity almost every machine in the country. At first, it is true that speculaion and fear on the part of many concerns made conditions seem unusually acute. However, where buyers regained their composure, it was found that the consumption had increased greatly because of the extraordinary amount of business being done in general. The consequence was that the demand was as great as before. Orders had literally been pouring in despite price advances and other means which would commonly thwart business. In book papers, some mills claimed to be as much as eight months behind on their books. For a while, it was impossible to get any quotation on krafts, except from dealers at exorbitant prices.

Wire Screens in Short Supply

As might be expected, the continuous operation of the mills at capacity shortened the life of every Fourdrinier wire that was

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BONDS	LEDGERS
WHITE ROCA BOND	WHITE ROCA LINEN LEDGER
CORDUROY	CORDUROY LEDGER.

used. The consequence was an increased demand for these wires at a time when Canada and other foreign countries were seeking their supplies from the United States. Many of the wire manufacturers added looms to help take care of the added demand, but it was with difficulty that the domestic mills were taken care of. It was an open fact that several manufacturers were, at various times, in danger of shutting down because of the uncertainty as to whether or not they would have sufficient wires to keep them going.

Records in News Print Broken

In newsprint, every previous record was broken. Business began strongly at the very first of the year, contrary to custom. right up to Easter, the advertising carried in the newspapers of the country was greater than it had ever been and the consumption of newsprint had increased in proportion. The manufacturers were beset on all sides with requests for paper, but found themselves helpless. For a while, matters were made even worse by congested traffic conditions. During this time, it is known that the mills resorted to the plan of helping each other when a customer was in dire need of stock.

There is no doubt but that the strikes which were in progress in the Watertown district during the early part of the year had a direct effect on the market, for they took considerable tonnage out which could have been used to good advantage.

Small Publishers Complain

Many of the smaller publishers, finding it impossible to get their proper requirements of news from the manufacturers, were compelled to seek relief from jobbers, and it was soon a common complaint that it had been necessary to pay 4 cents, 5 cents, 6 cents and even higher for stock. The cries of these small papers attracted the attention of the public to the extent that the News-Print Association found it advisable to ask the Federal Trade Commission for an investigation of the newsprint industry. As previously stated, this investigation has not been productive of anything material, except that there has been no proof of the accusation that newsprint prices had been advanced by collusion.

The export demand for news was enormous throughout the year, but it is to the credit of American manufacturers that they gave it comparatively little recognition.

During the summer, a period when the demand for newsprint is generally greatest, the request continued and the shortage reached the point where the publishers set up the cry that many of their number were in danger of being forced out of business. As is usual under such circumstances, the various newspaper associations passed resolutions deciding to erect their own mills. As a matter of fact, a number of the larger concerns succeeded in gaining control of good-sized news plants. The strictest measures in the way of helping to reduce the consumption of news print were adopted by publishers throughout the country and many even raised the prices of their papers to help meet the increased costs. Conditions are still stringent, although there is more stock available today than there has been in some time. One of the features of the year was the naming of the new contract price by the International Paper Company—$3.10 to $3.25, at the mill.

Book Papers Unusually Active

Book papers were unusually active throughout the year. Like newsprint, it benefitted directly through the increase in the volume of advertising. It is true that a good many magazines, when the price of book papers started to ascend, resorted to the use of high grade newsprint, but this did not in the least deter the forward movement of the market. As early as April of last year, it was difficult to place orders for super for shipment during any part of 1916. Coated papers were strong, but did not enjoy so great a demand. Consequently there were times when prices were shaded because of competition.

Wrapping papers of all kinds were exceptionally strong. The demand was for krafts, manilas and fibers, without reserve. The fact is that the high price of krafts forced many concerns to the use of manilas and still others to content themselves with fibers. The quotations on all of these grades advanced enormously, but the cry for stock continued. During the past few months, there has been waged by the department stores and similar institutions, a campaign urging economy in the use of wrapping papers and it is possible that the results of this movement will be reflected in the market within the near future. Thus far, however, conditions are rather strong.

Writings in Sympathy with Other Grades

Writing papers have acted in sympathy with the other grades. It is true that, as the prices advanced, the tendency on the part of the consumer was to order the cheaper sulphite bonds, but these were soon selling at 11 cents and 12 cents and higher—and, at times, were unobtainable, so it was often necessary to pay the increases on rag papers. As has been noted before, prices seemed to change from day to day, during certain periods, making it most unpleasant and uncertain for jobbers. The standardization of writing paper by substance numbers has been an achievement in the right direction.

The movement of tissues was in direct harmony with the action of the pulp markets. When the price of bleached sulphite began to soar, quotations on pure white tissues moved upward gradually from about 45 cents a ream, reaching a high spot of about $1.35 a ream. Manila tissues were also severely affected and advanced in proportion. At practically all times during the past year, the demand for these papers was very strong, with the mills operating at capacity.

Board Prices Unusually Strong

In boards, the price advances during the year were phenomenal. Buyers had been accustomed to getting stock at will and at very low prices, so the tendency was to follow this habit. However, as the quotations on boards kept on going higher, instead of showing any indications of weakening, consumers began to realize that they could not be guided by past experiences. It is probable that the market manifested its first signs of actual strength in the West, for the strike of the garment makers in New York acted as a damper in the East for a short time. The advances in boards are perhaps greater than in any of the other branches of the industry. Factors have been operating in such a way that it was considered a favor to get any sort of shipment from the mills. An idea can be obtained from the following table of the way prices acted during the year:

	1916.			
	January 1.	March 30.	September 7.	December 28.
News board	$27 @29	$55 @	$60 @	$75 @80
Straw board	25 @26	45 @	50 @	65 @70
Chip board	24 @26	50 @	52½ @	70 @
Wood pulp board	40 @42½	.....	55 @	75 @

Pioneer Paper Co.'s Profit-Sharing Plan

Announcement is made by the Pioneer Paper Company of the installation of a profit-sharing plan coincident with the commencement of its twenty-ninth year in business in the city of Los Angeles, Cal.

In putting into effect a profit-sharing plan, it is the company's desire to promote the greatest harmony between employes and employer; to better the condition of its employes; to secure greater efficiency and thereby give its customers a greater measure of service. The plan that is to be installed has been very carefully worked out, and it is understood will have the effect of making every employe virtually a partner in the business.

W. G. Hunt is president of the company; H. M. Eichelberger, secretary and treasurer, and William Henry, manager of the roofing department.

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A Year of Eventful Conditions in England

Wonder Is Not That There Have Been So Many Changes in Conditions That Affect the Paper Market but Rather that the Fluctuations Have Not Been More Frequent and More Disturbing in Character—How the Various More Important Descriptions of Paper Have Been Affected.

Written for the Annual Number of the Paper Trade Journal by A. L. Wise

Looking back upon the year that has just completed its course, and remembering that the United Kingdom, which is dependent upon outside sources for the greater part of its raw material for paper making, has for more than two years been involved in the greatest of all wars, and her sea-borne traffic subject to submarine attacks, it is a matter for surprise, not so much that there have been many changes in the conditions which affect the paper market, as that the fluctuations have not been of more frequent occurrence and more violent in character.

A. L. Wise

At the beginning of 1916 business was slack and prices easy, but toward the end of January came the announcement of the prohibition by the Swedish Government of the export of sulphite pulp, the immediate effect of which was to create a large and insistent demand for news print, and, consequently, to increase the value of that commodity. Add to this the difficulties of the freight situation and the fact that the production of the freight situation and the fact that the production of ground wood in Norway had fallen off to a very considerable extent owing to the insufficient volume of water at the mills, and the shortage of labor, and it will be readily understood that the British newspaper proprietor was not at all easy in his mind as to the possibility of getting regular supplies, nor was the manufacturer able to give him any assurance on that point, as the stocks of raw material carried by the mills were in most instances not more than sufficient to keep the machines going for more than two or three months at the outside. One or two of the most important publishing houses were the fortunate possessors of large reserves of news print, but even they were not free from anxiety, and they came on the market with inquiries for considerable tonnage, but the mills being faced with the prospect of an early depletion of their labor forces as the result of the calling up of many of the groups under Lord Derby's recruiting scheme, and at the same time some restrictions of imports being foreshadowed, great excitement prevailed in paper circles and prices reached a higher level than has been known for many decades.

Manufacturers were in the usual position of being able to select only those orders that suited them best, and besides being unable to satisfy the domestic demand were obliged to decline business, running into many thousands of tons at fancy prices, which was offered them by French publishers.

Restrictions on Paper Imports

About the middle of February a royal proclamation was issued prohibiting the importation into the United Kingdom of paper and paper-making materials except under license, and this coincided with the formation of a royal commission on paper, whose duty it was, *inter alia*, to issue licenses and to control imports, which were reduced, under the commissioners' regulations, to one-third of the quantity imported during the year 1914. These restrictions came into effect on March 1 and a great deal of inconvenience and annoyance was caused by the short notice given, the commissioners getting to work only a few days before that date, and some shipping companies refusing to put on board consignments of paper already at the shipping point, until import permits had been lodged with their London offices, while an instance is known of one steamship company cancelling, or at any rate endeavoring to repudiate its obligations, adducing as a reason the royal proclamation. Freights advanced by leaps and bounds, and transatlantic rates to London and Liverpool, in particular, reached undreamed-of heights; in some cases $3.00 per 100 lbs. being quoted, while to all other ports increases of several hundreds per cent were paid.

In the Spring the shortage of sulphite pulp was so pronounced that one English news-mill had to shut down for a time, and to make matters worse the steamer *Chic* with a cargo of between 4,000 and 5,000 tons of chemical pulp from Canada was sunk by a German submarine; this naturally increased the demand and business was done at prices equipvalent to five or six times the pre-war figures. Numerous enquiries were made for sulphite pulp from the United States, but only very inconsiderable quantities were secured, the Americans having barely sufficient for their own requirements. About this time some of the newspapers began to reduce the number of pages per copy, and one evening paper, the *Star*, printed its first edition on a broad-sheet of two pages and is still doing so at the end of the year. An increase in the price of morning and evening newspapers was noted, but nothing was done in this direction until later in the year except in the case of some of the less important country papers, which raised the price from a penny to 1½d.

Norwegian Situation Does Not Help Matters

A threatened lock-out in the Norwegian pulp and paper mills at the beginning of June did not add to the happiness of manufacturers and publishers, but fortunately this trouble did not materialize, and from this time to well into the Autumn conditions were much easier and prices on the down-grade. Publishers having taken into stock as much paper as they could pay for were not placing further orders, and news print was offered at prices equal to 4½ cents to 5 cents per pound delivered, by Scandinavian as well as English mills, and it must not be forgotten that the loss

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in exchange between Scandinavia and the United Kingdom was still an important item, although it showed a large decrease from the 12½ per cent figure to which it attained earlier in the year.

During the month of October many mills, including some of those making news print, were running short time, and one of the latter was so short of orders that the machines were put to making brown wrappings, but with only a small measure of success. A further reduction of imports of both paper and raw material from 66 2-3 per cent to 50 per cent of the 1914 tonnage was notified, and prices were expected to stiffen, but the continued absence of demand disappointed these hopes.

Several meetings of newspaper proprietors were held in London during the late Autumn to agree, if possible, upon an all-around increase of ½d. in the price of morning and evening papers, but a deplorable lack of unanimity prevented any change being made in this direction. The owners of the half-penny papers could not increase their price to a penny unless the price of the penny papers was also advanced, and the publishers of the higher-priced papers could not all agree to take this step, and as naturally those who were in favor of an increase would be at a disadvantage if some of their competitors stood out, the matter stands where it did and nothing has been done. There is, however, one notable exception, viz., the London *Times*, which is controlled by Lord Northcliffe. The *Times*, announcing that, owing to the heavy extra expenses incurred during the year, a loss of £70,000 had been made, put its price up from a penny to 1½d. with an intimation that in all likelihood a further increase would have to be made later on, and it is understood that, notwithstanding the higher price, the circulation has not been adversely affected.

News Print Prices at Close of Year Stiffer

News print prices at the close of the year were again stiffer, following the announcement of a still further reduction of imports to five-sixths of the quantity received during 1916, and business showed some signs of improvement. Altogether it must be admitted that the news mills have, as a whole, had a good year, and those manufacturers who had previously been in dangerous proximity to the line which divides profits from loss now find themselves in a greatly improved position and have been able to present satisfactory balance sheets to their shareholders.

Manufacturers of writings, fine printings, book and coated papers have, during the past year, been subject to the same difficulties as the news manufacturers, and have also had rather an anxious time owing to the conditions mentioned above. In most cases, however, the financial returns have also been satisfactory and in many cases mills which have not paid any return upon their capital for some years past have also been able to show satisfactory results.

The mills in the United Kingdom may be divided into four groups, viz.: (1) Mills making sulphite printings, etc.; (2) Mills making esparto basis papers; (3) Mills making rag papers; (4) Mills making wrapping papers.

Sulphite Printings

In regard to Group 1, the high prices ruling for raw material naturally had the effect of forcing up the manufactured cost to such an extent that early in the year buyers took fright and mill stocks were cleared out in short order at phenomenally high prices, and not only were the mills here inundated with making orders, but a large volume of business went to the United States. Towards the end of the year business fell off very considerably, and orders were conspicuous by their absence, and prices for the finished article showed a decided downward tendency, in spite of the continued high prices of raw material.

Esparto Grass Basis

The mills included in Group 2, depending upon Esparto Grass for the bulk of their raw material, were in the position of being able to undersell the makers of sulphite paper, and although various arrangements were made by the manufacturers of esparto and sulphite papers, the fact remains that the "esparto people" were, and still are able to make contracts at lower prices than the "sulphite people." The labor conditions in the countries from which supplies of esparto grass are drawn, namely, Spain for the higher grades, and North Africa for the inferior grades, were not affected to the same extent as the Scandinavian sources of supply, and shipping facilities from the Mediterranean were nothing like so difficult as those maintaining in the North Sea. At the time of writing business in esparto papers is very quiet, and the outlook for manufacturers of these papers does not appear to be bright.

Rag and Wrapping Papers

Group 3, being of less importance from the tonnage point of view than the two classes above mentioned, was not liable to the same hardships in connection with the supply of raw material, the Dutch sources of supply still being available, while at the same time a greater effort seems to have been made, with considerable success, to collect the available supply in this country. The tendency of the price of rag papers is in a downward direction.

Manufacturers of all classes of wrapping papers have had things practically all their own way. Being to a very great extent independent of outside sources of supply for their raw material, and the demand being an increasing one, the mills kept running with full order books until late in the Autumn when business slackened off somewhat as a result of the very large buying which took place in the Spring and Summer. But, although orders are not coming in so freely at the end of the year, prices have not been affected to any extent worth mentioning.

It might be well to make a passing reference to coated papers. The difficulty in getting the necessary skilled labor compelled many mills to curtail their production, and the shortage of labor, combined with the very high prices of casein, glue, etc., made this class of goods something like a luxury, so much so that they appear almost to have dropped out of the running.

ABITIBI COMPANY MAKES BIG IMPROVEMENTS

When the improvements now in course of construction at the plant of the Abitibi Power & Paper Company at Iroquois Falls, Ontario are completed, about April 1, the capacity of the sulphite mill, now about 64 tons per day, will be doubled. This is only one of the additions to the plant, for when the weather permits in the spring work will be begun on the installation of two 232-inch paper machines, for which a new extension must be built.

In the sulphite mill two additional digesters, which will add 64 tons to the output of pulp, are now being installed. The digesters are being furnished by the Manitowoc Boiler Works, digester linings by the Stebbins Engineering and Manufacturing Company, and blow-tanks and storage tanks by Wendnagel & Co. The two machines for the paper mill are being supplied by Charles Walmsley & Co., England. They will have a capacity of 75 tons each per 24-hour day.

Work is also now going on at the site of a new hydro-electric plant, located at Twin Falls, four and a half miles distant on the Abitibi River, which will develop the power required by the new equipment. The power plant will consist of four units of 6,000 H.P. each, the waterwheels to be supplied by I. P. Morris.

In connection with the paper mill the ground wood mill will also be extended by the addition of twenty more grinders, with capacity of about 200 tons per day. It is also planned to install a cylinder machine for the manufacture of wrappings. The paper mill additions, it is stated, will be in operation by the early part of 1918. When the work is completed the total capacity of the plant will be 450 tons of paper, 400 tons of ground wood, and 128 tons of sulphite pulp a day. The power will be supplied by vertical waterwheels and generators of the umbrella type, furnished by the Canadian Westinghouse Company. The motors are furnished by the Canadian General Electric Company.

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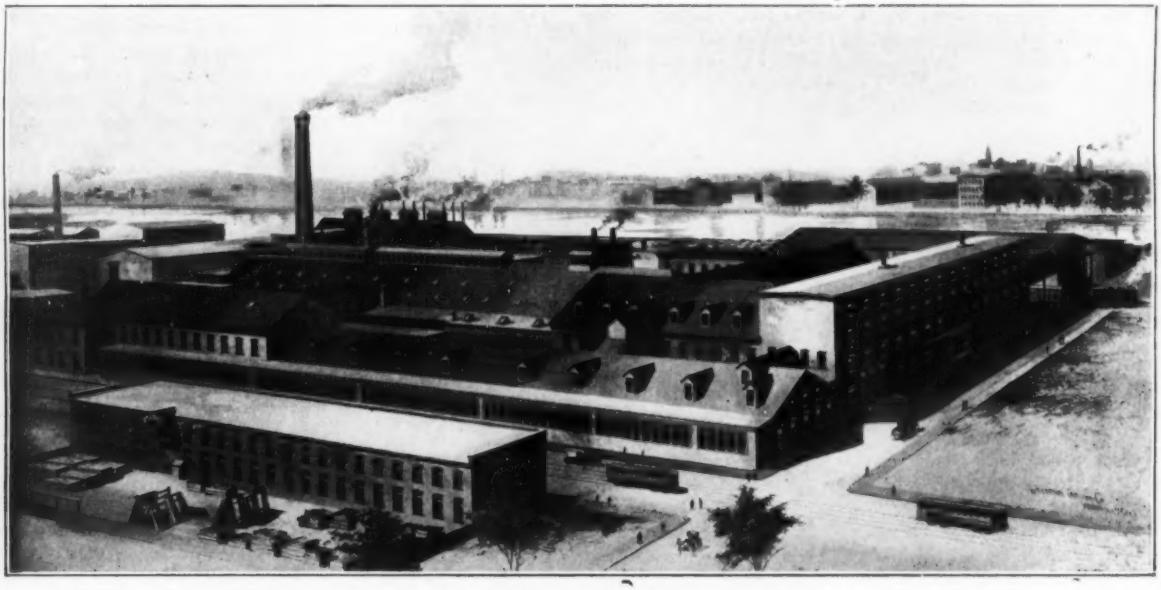

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Manufacture of Paper In France Shows Decrease

Amount of Paper Imported During the Year Shows Increase—Commercial Aspect of the Market for Paper Has Not Improved—Consumption of New Paper Has Decreased Owing to the Fact That Journals Have Cut Down Their Size—There Has Been a Drop in Writing Paper Prices.

Written for the Annual Number of the Paper Trade Journal by E. Bardet

The amount of paper imported into France increased still further in 1916 owing to the decrease in the amount manufactured. But there has also been a change in the countries from which the paper was exported; for instance, take the case of Spain, which at present does not send us anything practically, whereas she has formerly sent us large quantities of various kinds of paper and pasteboard from the companies Papelera Espanola, Papelera del Araxes, Casanovas, Echazarette y Cia. These companies, however, can no longer send anything, as their prices are higher than those in other countries. There should also be taken into account the high freights, the cost of coal and pasteboard, the difficulty of obtaining them and also the change in the value of the peseta. On the other hand, Holland has sent us large quantities of merchandise, paper and pasteboard from the Papierfabrick Gelderland, Scholten, etc.

The Scandinavian countries have continued their exports of newspaper, and the Union de Skien has sent the largest amount. I estimate that it alone has sent more than all the other companies combined. Next after the "Union" should be mentioned the International Paper Company of New York, which stands as the second largest supplier of paper. This concern's papers are recognized as superior in all respects to any other paper recently imported into France.

The consumption of news paper has decreased in France owing to the agreement of the French press to reduce the size of its papers, which amounts twice a week to 50 per cent.; of course, not all of the papers have adopted this reduction, but it has been accepted and carried out by a large number of them.

The Scandinavian countries have also sent us large quantities of packing (papier de pliage) and wrapping paper, and kraft, sulphite and cape paper; these papers, which are superior in quality to papers of the usual French manufacture, have been very popular with buyers, owing to their firmness; most of these papers have been furnished by the important factories of the Union de la Drammen and the Goteborg Dalm Pappersbruk.

However, it is becoming too expensive to import these papers, because of the high freight and insurance rates and the high price of these papers.

The freight rate from Sweden, which was 50 kronors a short time ago, is now 85, and the same is true of insurance, the rate of which has been most uncertain; when we add demurrage charges paper is at an unreasonably high price.

We also receive several tissue and vellum writing papers from England from Wrigley & Son, Pirie & Son, Morgan, Dickinson and other companies; some wrapping paper from Cooke and Nuttall. This wrapping paper, however, is in small quantities.

Several tenders have been made by Denmark, but none of these has resulted in anything.

In addition to news paper a thousand tons of paper for magazines, called rotogravure and half-tone paper, have been exported by America by the International Paper Company.

Some other kinds have also been exported by the United States Export Association Company of New York, but in such small quantities as to be negligible.

It is feared that later these exportations will be forbidden because the question is being agitated of forbidding the importation of paper from foreign countries into France; this will not apply to news paper alone; so-called sulphurized paper and similar kinds have already been forbidden importation in France, and also cardboard, by the decree of September 28, 1916.

To conclude, the amount of paper imported into France in the past year has been greater than in the preceding year owing to the decrease in manufacture by French factories.

Manufacture of Paper Diminished

The manufacture of paper and pasteboard in France has diminished rather than increased during the year 1916, contrary to all expectation. It appeared in January that manufactures would pick up, but on the contrary they have remained stationary for some time, decreasing in the end. This has been caused by numerous agencies, of which the needs of the army are the chief.

These factors are:

1. Lack of operators.
2. The requisition of factories for war purposes.

In fact, a number of them have had to shut down because they lack workmen and officials, both being mobilized with the army. Many factories have been requisitioned for the bleaching of cotton for the manufacture of munitions, "fulmi" cotton, etc. Others have been requisitioned for the manufacture of cardboard of all kinds, "cartons bitumés," for the troops' barracks, etc. The few which are still running have only a limited production because of the lack of workmen to operate the idle machines. There are certain factories which work only during the day and which are obliged to stop from Saturday night to Monday morning in order to give a little rest to the too greatly diminished force.

This results in diminished output, but I will say that the consumption is also diminished. To all of these obstacles I should add the coal crisis and the transportation difficulty to which we have been subjected for some time, and I can cite some factories which will have to stop work if these conditions are not quickly improved; being both unable to receive raw materials and to export finished paper, it is evident that these factories cannot possibly continue manufacture.

This transportation crisis as well as the coal shortage would seem to be overcome by the British Government, which is sending us quantities of cars for the transportation of its troops and supplies, and is to send to France this January 30,000 carloads of coal.

In spite of this, the manufacture of paper in France will always be in a precarious situation, owing to this lack of workmen, both laborers and executives, all of whom are in the army; moreover, as the younger men have to leave the number of workmen remaining in the shops will be further diminished.

The closing of some shops which are still working very laboriously seems to me imperative; I will not say that all of them will have to be closed, but that a part of them which are now operating will be obliged to stop work at least until circumstances will per-

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mit work to be continued. In conclusion, the manufacture of paper in France has been less prosperous this year than last year.

Commercial Aspect Not Improved

As for the commercial aspect of paper during this year it has been nearly the same as last year from the point of view of any progress. However, I should recall that during this last year there have been periods during which the lack of merchandise has been felt, due to the non-production of a number of French factories and to the increasing difficulties of importation.

On this question of commerce there are only a few things to be said, and the question of price alone seems to be of interest.

News Paper

It would be difficult to say what is the present market price of these papers, and all prices which might be given as current in France at this time are more or less fantastic and without foundation. Matters have been practically unchanged for some months. This may be due to the fact that all of the important journals have made important purchases, and their requirements are now covered for some time by their suppliers through regular contracts; these contracts were made several months ago, when the French publishers, becoming panic stricken and fearing they would lack paper, made purchases apparently greater than their requirements. There are a few small papers which for one reason or another have not followed this movement. These make their purchases in factories in their neighborhood. These factories sell at from 65 to 70 francs, depending upon the time, the size, the quantity. But this price is not applicable to large deals, because these little factories could not carry on much business owing to their small production. News paper of the size used by certain journals and for certain printing jobs costs 3 to 4 francs more; but the demand for this kind is not considerable.

Print Paper

In considering these papers we will confine ourselves to the cheap kinds and not the expensive. The prices are variable, depending upon the quality, being from 90 to 115 francs per 100 kilograms. The same is true of papers of good quality, such as papers for book publishing, because the editors as well as the printers have seen their business decrease considerably; however, exception should be made in the case of manufacturers working on war orders or other special work. But on the whole the printing industry, whether litho or typo, has lacked work this year.

Writing Paper

In regard to writing paper, the various kinds were very high priced at the beginning of the year, and this is especially true of vellum and English tissue. But these prices have been going down for several months, because several companies have undertaken their manufacture owing to the extraordinary prices paid for them, with the result that there has been an overproduction, and consequently a drop in price. Another reason for this drop is the decreased consumption, and that is a most serious reason. In fact, the freedom of the soldiers to send and receive letters has resulted in an abuse, and military correspondence had assumed enormous proportions. But fortunately this abuse has now ceased and this has seriously decreased the demand for paper and consequently the price. Vellums and ordinary tissue formerly costing 160 francs are scarcely worth more than 120 to 125 francs. As for ordinary grades which now cost 100 to 110, their price was 140 francs. The same is true of the better grades, the price of which has fallen 30 and 40 francs per 100 kg. Of the writing papers, including typewriter papers, the latter alone have maintained their price, and it has even advanced for certain grades. The prices of papers which are not as good as "bond" are 180 to 200 francs, depending upon the quality and weight per square meter.

The price of these papers has increased in large proportion, both those of French manufacture and those of foreign manufacture. I will only mention the most popular varieties, commencing with the French products, the most common being yellow brown, bisulphite papers, crape papers, rag and straw papers. All of these papers have risen in price in the last year, as already stated, owing to the cost of raw material from which they are made, i. e., old papers. The beginning of this rise in price dates from the time when the British Government forbade the exportation of old paper, and as most of the old paper used in France came from England, the raw material was cut off and the price of old papers in France, which was from 4 to 6 francs per 100 kg., reached 20 to 25 francs. This occurred directly after the English decision regarding exportation.

The prices of these wrapping and packing papers are now as follows:

	Francs.
Goudron, 100 grams per sq. m and over	80
Bisulphites, 45 to 70 per sq. m	110
Bisulphites, 71 and over	100
Rag paper, 100 per sq. m. and over	58
Phormiums, 40 and over	90
Straw, 125 per sq. m. and over	65

The latter article has increased in considerable proportions owing to the requisition of straw for war purposes, and since, moreover, this year the harvest has been poor the price of the latter is very high. It is even feared that this year straw will be lacking owing to the bad crop and the needs of the army. From England we receive only goudrons (yellow brown), which now costs 30 francs per cwt., f. o. b., Liverpool. From Scandinavia we receive only sulphites and the capes, the market prices of which at present are:

Cif. Le Havre, Rouen, Nantes or Bordeaux.

	Sulphites. Francs.	Capes. Francs.
20 grams per sq. m	153	123
25 grams per sq. m	137	107
30 grams per sq. m	132	102
40 grams per sq. m	125	95

For the light colors 5 francs per 100 kg. should be added to these prices.

I will state regarding colored papers that they are not being made at all in France, due to the lack of coloring materials. As for pasteboard the price has risen perceptibly since the decree of September 28, forbidding the importation into France of all foreign pasteboard over 340 grams per sq. m. The present selling price of the factories is: Strawboard, 50 francs; gray cardboard, 60 francs; imitation leather, 65 francs; leather, 75 francs; wood, 70 francs.

I will close by saying a few words about the salesmen's conferences, similar to that at Leipzig, which took place one at Lyons and the other at Bordeaux. At both of these the paper industry was represented by several products from our French factories and also by several foreign houses, such as the Papelera Espanola, Papelera de Araxes, Drammen Paper Mills.

I will recommend, especially to American houses, these conferences, which will be annual affairs. They have met with great success and important business has been transacted at them. For it must be remembered that in the French and English market, and even in the Italian, an important place may be gained after the war where there will be large business to transact, and that it is a unique opportunity for the American paper industry to establish substantial and good commercial relationships in France. I might add that already several houses have commenced to plant beacons to this end, and the end of the war will simply make these beginnings more substantial and cordial.

Quebec and Maritime Provinces Are Busy

Never in History of the Industry Have Conditions Been So Prosperous, Prices So High or the Demand for Every Class of Product So Insistent and Overwhelming—Mills Are Largely Increasing Their Capacities and Numerous New Enterprises Are Reported—A Review of Some of the Improvements.

Written for the Annual Number of the Paper Trade Journal by C. L. Sibley

The past year has been one of real astounding progress in the pulp and paper industry of the Province of Quebec and the maritime provinces. Never in the history of the industry have conditions been so prosperous, prices so high or the demand for every class of product so insistent and overwhelming. The net result of all this has been to put practically every pulp and paper company on a firm financial footing, to wipe out all past arrears in dividends or debts and to bring handsome returns to people who had begun to despair of ever getting back money that had been put into pulp and paper enterprises. This from the shareholders' point of view. From the trade point of view an enormous stimulus to the industry is to be noted. Every mill in this section of the country has been speeded up to its utmost limit of production; new mills have been built; old ones have been enlarged, and huge projects for extending the industry are now under negotiation. It is firmly believed here that Canada will soon be the centre of the news print industry of the world, and men whom some describe as far-seeing and others as merely speculative are hard at work on schemes to fit eastern Canada to earn the title.

Year Opened with Uncertainty

When the year began there was a lot of uncertainty as to the situation, and it was some time before the mills got into their present stride. From uncertainty the outlook passed to one of overconfidence, with great inflation of paper securities. There was good excuse for this. Every pulp and paper mill in the country was overwhelmed with orders. Consumers were almost on their knees to the companies begging for supplies. For many kinds of paper orders had to be filed several months ahead, and to get promise of delivery even then customers had to agree to pay whatever price might happen to be current on the date of delivery. And the prices have been nothing short of staggering, while hundreds of thousands of dollars' worth of orders for pulp or paper at any price have had to be turned away. Of course, the rise in the cost of all new materials and of labor has sent the prices soaring, but there is no doubt that pulp and paper companies have been making profits such as they never even dreamed of a couple of years ago. All this resulted in wild speculation in pulp and paper securities—speculation which the peace rumors at the end of the year did much to stop.

Chief among the developments of the year of companies whose headquarters are situated in Montreal is that of the Abitibi Power and Paper Company. This company only finished its original plant early last year, and it is now engaged in doubling this plant, so as to bring the daily output of news print up to a minimum of 400 tons. The company is also increasing its water power development to 24,000 horse-power maximum, the ground wood plant to 350 tons per day and the sulphite capacity by 50 tons per day. The enlarged plant is expected to come into operation early this year.

Another firm engaged in extensive additions is that of Price Bros. & Co., who have raised half a million dollars to add a new unit to the news print mill at Kenogami, Que., bringing the company's output up to 62,000 tons per annum. This unit will probably be in operation by late spring. Additions have also been made and put into operation in both the sulphite and ground wood plants, bringing the production up to 55,000 tons of ground wood per annum and 25,000 tons of sulphite.

St. Maurice Paper Company's Big Project

The past year has also witnessed the transfer of the Union Bag and Paper Company's plant at Cape Madeleine, Que., to a new company named the St. Maurice Paper Company, with a capitalization of $10,000,000. The same company also took over the Gres Falls Company, the St. Gabriel Lumber Company, Ltd., and the Charlemagne and Lac Pureau Company. The new company set to work at once to build a news print mill, a sulphite mill and a kraft mill at Cape Madeleine, while carrying out improvements in the existing plant. The company has arranged to get hydro-electric power from the Shawinigan Water and Power Company, and already has part of the new plant producing. The capacity of the company's new plant will be 30,000 tons of news print per annum, 12,000 tons of kraft and 18,000 tons of sulphite.

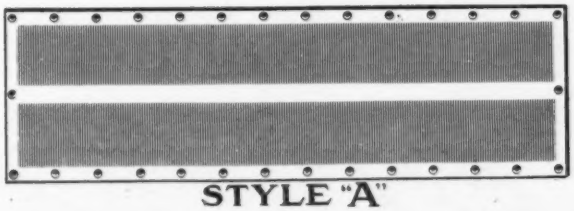
A new company known as the Ha Ha Bay Sulphite Company, with J. E. A. Dubuc, president of the North American Pulp and Paper Company, as its head, is now completing a mill at Bagotville, Que., for the manufacture of unbleached sulphite. This mill, which will be in operation early in the present year, will have a capacity of 120 tons per day. The company has a capitalization of $2,000,000.

The Donnacona Pulp and Paper Company, of Donnacona, Que., has added a new unit to its news print plant during the year, bringing the output up from 50 to 100 tons per day. The Belgo-Canadian Pulp and Paper Company, of Shawinigan, Que., has installed another paper making machine, bringing the capacity of the mill up to 180 tons per day as against 120. The company has also doubled its sulphite plant, which formerly produced 60 tons per day.

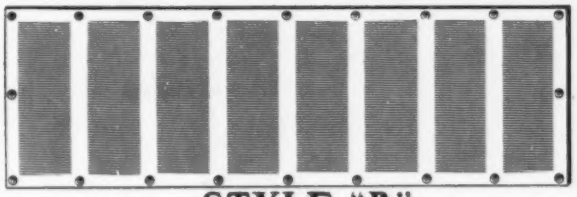
There has been a reorganization and development of the Brompton Pulp and Paper Company, whose plants are at East Angus, Que., and Brompton, Que. This company has secured a new charter authorizing a capitalization of $9,000,000. Big increases are now under way in each of the plants, and the additional units now being added will increase the output by 15,000 tons of news print per annum, 15,000 tons of ground wood, and 5,000 of boxboard.

Howard Smith Developments

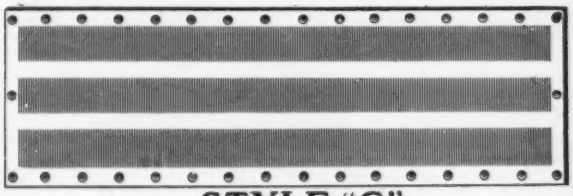
The Howard Smith Paper Mills, Ltd., of Montreal, have been considerably developed during the year, the most important move being the purchase of the paper mills of Edwin Crabtree & Sons, Ltd., of Crabtree Mills, Que. For these developments, the capital stock of the Howard Smith Paper Mills have been increased from $1,000,000 to $3,000,000, and the company is



STYLE "A"



STYLE "B"



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PITTSBURGH, PA.....420 FIRST AVENUE
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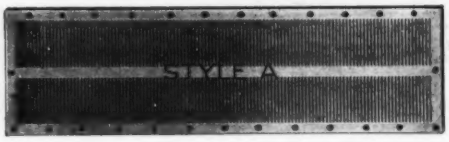

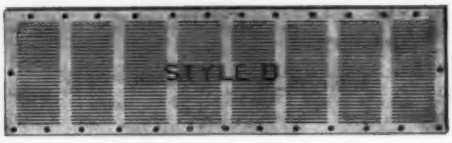

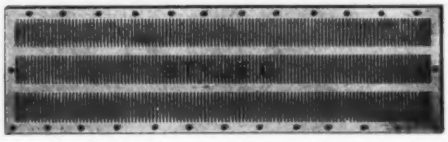

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Immediate Delivery of the Largest Orders.

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WITHAM IMPROVED SCREEN PLATE FASTENER

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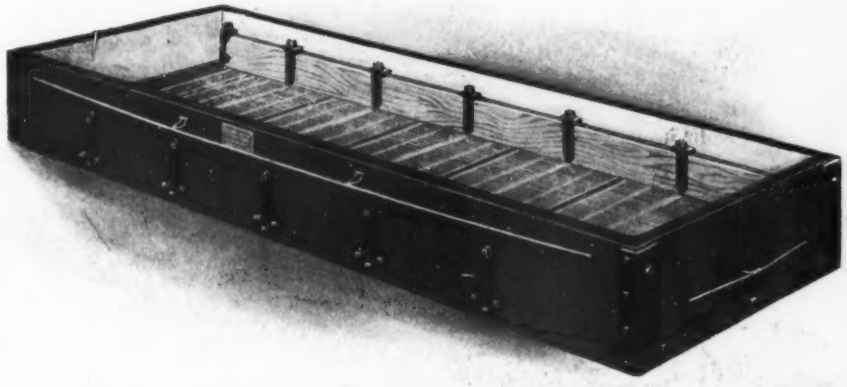

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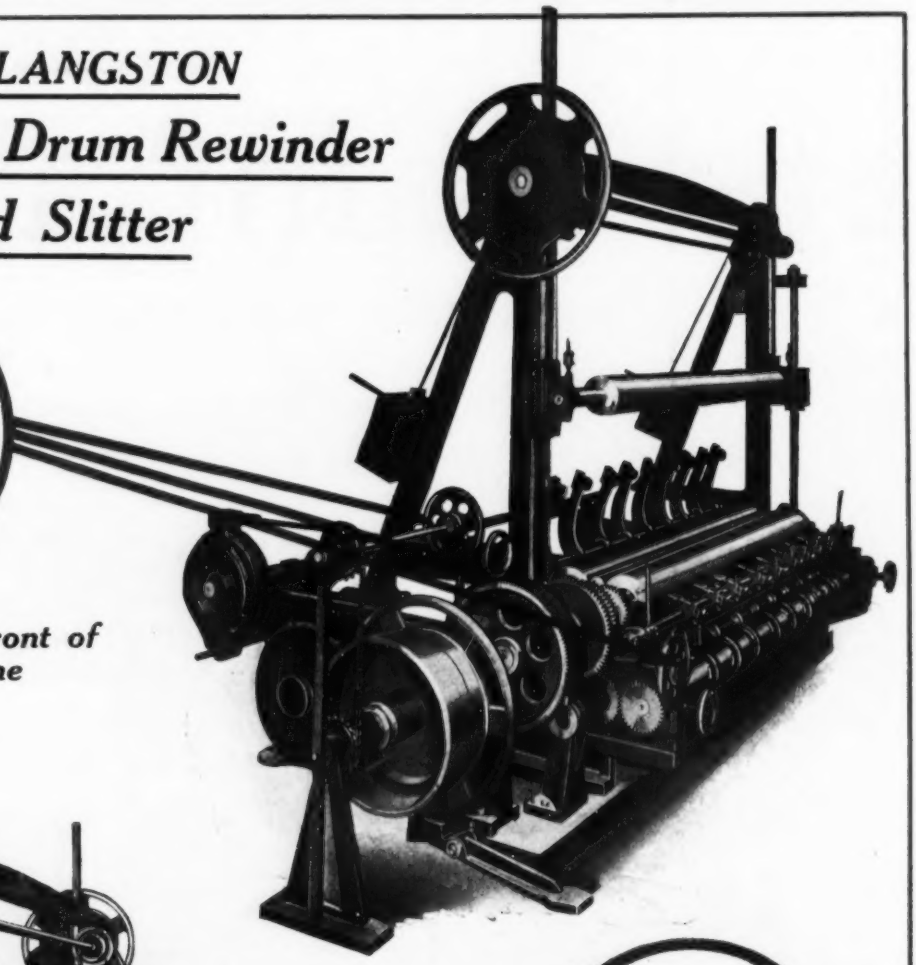
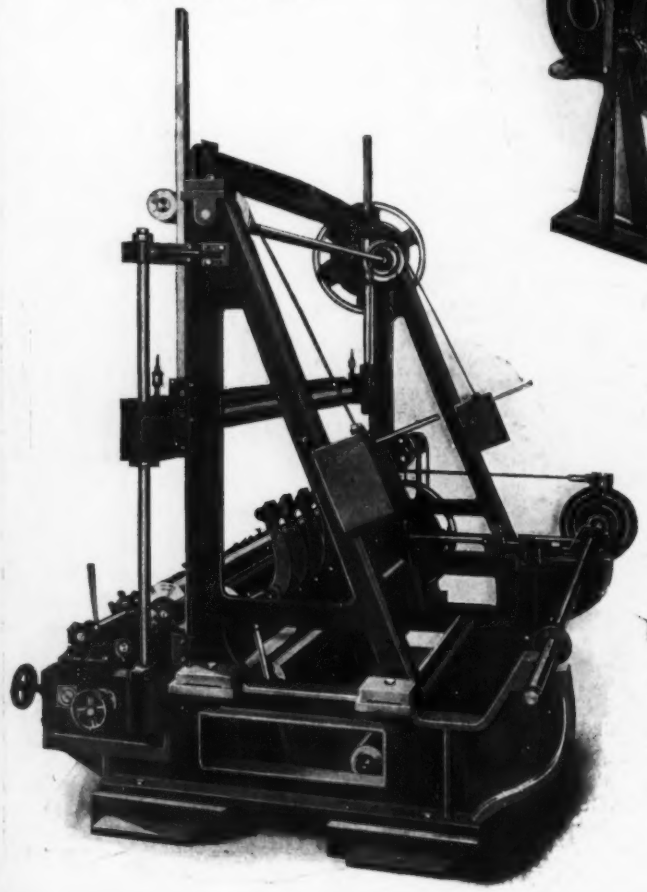


All from the front of the Machine



Nothing here for the operator to do but change rolls

Samuel M. Langston Company

Patented January 28, 1902

Camden, N. J., U. S. A.

planning a big increase in the output of various grades of paper.

The Riordon Pulp and Paper Company, of Montreal, has installed an electrolytic bleaching system at its mill at Millerton, Ont., and the whole output of this mill—30 tons of unbleached sulphite per day—is now being bleached.

The North American Pulp and Paper Company, at Chandler, Que., has considerably speeded up the output of the sulphite plant at Chandler, Que., and the ground wood plants in the Chicoutimi districts, and has announced the doubling of the sulphite plant at Chandler, Que., so as to bring the output up to 480,000 pounds of dry sulphite every 24 hours.

Other developments of existing plants during the year include the enlargement of the Canada Paper Company's plant at Windsor Mills, Que., where $30,000 has been spent in new buildings; the enlargements of the St. Lawrence Bag and Paper Company's plant at Quebec, at a cost of $20,000; the enlargement of the plant of the Lazier Paper Mills Company, Ltd., of Montreal, from a production of 5,000 pounds of wrapping and corrugated paper per day to 10,000 pounds.

The International Land and Lumber Company, Ltd., is planning a 100-ton pulp mill and a model town on the Ashuapmauchan River, in the Lake St. John region. Rochester interests have bought a large tract of timber limits west of Lake St. John, and erected a rossing mill for the preparation of pulp wood for export to northern New York points. James A. Outterson, president of the Carthage Sulphite Pulp and Paper Company, Carthage, N. Y., is reported to have been the purchaser of 80,000 acres of timber land between Tadousac and Murray Bay, containing over 800,000 cords of pulp wood. The Brown Pulp and Lumber Company, La Tuque, has bought out the Beauce Pulp and Lumber Company's plant at Scott Junction, Que.

Another important development has been the sale of the Edward Partington Pulp and Paper Company, of St. John, N. B., to a syndicate of Canadian and American capitalists now organized under the name of the Nashwaak Pulp and Paper Company. The syndicate is made up of members of the firms of the Oxford Paper Company of Rumford, Me., the Bryant Paper Company of Kalamazoo, Mich., and the Provincial Paper Mills Company of Toronto. The sum said to have been paid for the property, including mills at the Reversing Falls, St. John, is in the neighborhood of $2,000,000. Considerable development of the plant is now stated to be under way.

International Paper Company to Build

In addition to all these important steps in the progress of the industry, several others of great importance are projected. For instance, the International Paper Company announced some months ago its intention to build a 200-ton news print mill in Canada, with a ground wood and sulphite plant attached. It is said here that negotiations in regard to a site in the province of Quebec have been practically concluded, and that the building of the plant may now be started any day. The company has something like 2,800,000 acres of timber lands in Quebec province, but has been unable to ship much pulp wood from them since the embargo on the export of pulp wood from Crown lands went into force. Another big development which has been mooted during the year—but has not yet taken shape—is in connection with the Laurentide Company. There have been many rumors that the company intends to double its news print plant, so as to bring the capacity up to 400 tons per day. An announcement along these lines in the immediate future would surprise nobody.

Meanwhile there are large sums of money available for pulp and paper enterprises, as is instanced by the fact that several attempts

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¶ We maintain a laboratory for matching colored papers and it is at the service of all paper manufacturers. We recommend practical and efficient color formulas. This service is offered gratis and there is no obligation to purchase our dyes.

¶ If you think your color cost might be curtailed, write us.

¶ If you want to make a run of something new, let us do it first.

Importers and Manufacturers of

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have been made to buy out various plants, notably the Eddy plant at Hull, for which $9,000,000 was offered.

One of the most notable developments affecting the news print industry has been the formation of the Canadian Export Paper Association, with a capital of $50,000, and headquarters in Montreal. This association, which represents practically all the news print manufacturers in Canada, has for its object the marketing of all the surplus export news print made in the dominion, and the opening up and fostering of new foreign markets. It is expected that the association will be a big factor in the development of the industry, and that it will greatly simplify the problems of export trade.

Forest Wealth Available

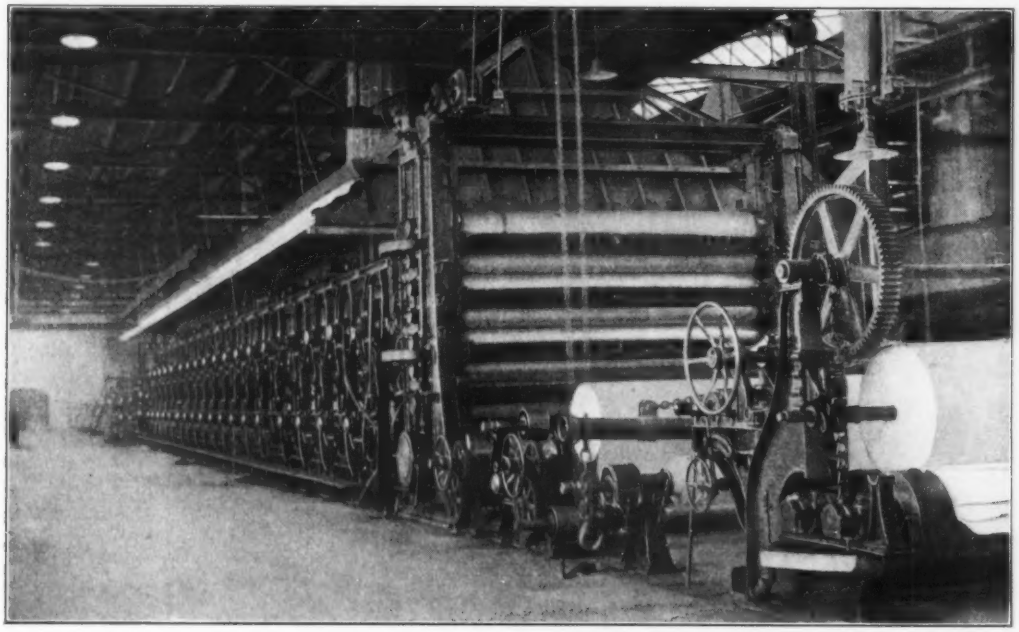
With the rapidly-growing importance of the pulp and paper industry, the provincial governments of eastern Canada are devoting great attention to a stock-taking of the forest wealth available. An estimate made by the Quebec government, after careful surveys, is that the forests of Quebec contain approximately $600,000,000 worth of timber, made up as follows: 50 billion feet board measure white and red pine, worth $200,000,000; 125 billion feet spruce and balsam fir, $250,000,000; 100 billion feet of pulp wood, $100,000,000; 35 billion feet of hardwood, birch, maple, etc., $25,000,000; 20 billion feet of cedar, $25,000,000. Of this forest wealth the pulp and paper industry is annually consuming over 300,000,000 feet of spruce alone. This is 52 per cent. of the whole amount used in Canada. There are now 31 pulp and paper mills in the province.

The government of New Brunswick is carrying out a very thorough survey of its forest lands. Three parties of surveyors have been at work, and they have already covered about 150,000 acres. Up to the present the estimate shows that 40 per cent. of the land is suitable for agriculture, and the intention is to draw up a comprehensive plan for clearing this land of timber, most of which is suitable for pulp wood. The forest products of New Brunswick now reach $12,000,000 annually.

Of great importance to the pulp and paper industry have been the steps taken for the greater conservation and development of the water powers of the province of Quebec. The provincial government has passed a law by which no development whatever is allowed on any stream in the province without a license from the government.

Damming St. Maurice River

Big progress has been made during the year on the work of damming the St. Maurice River some 200 miles north of Shawinigan Falls, and it is expected that this work will be completed next year. The reservoir to be created will store 160 billion cubic feet of water, which is just twice as great as the quantity stored by the enlarged Assuan dam, on the Nile. This work will have an important influence on many industries in the St. Maurice valley besides pulp and paper industries. The provincial government has already entered the contracts with a number of companies for the use of the extra power, which will be available when the flow of water is controlled. These companies include the Laurentide company, the Brown corporation, which has a big pulp mill at the La Tuque and The Shawinigan Water & Power Company. The revenue derived from these sources will pay the interest and sinking fund on the cost of building the dam. Other big water conservation schemes are being carried out by the government in other districts, notably on the St. Francis River, by which additional power will be available for paper making and other industries.



PAPER MACHINE NO. 2 RECENTLY STARTED BY THE DONNACONA PAPER COMPANY, LTD., DONNACONA, QUEBEC.

In the way of private enterprise, the most important power scheme has been the completion of the Laurentide company's development at Grand Mere. This provides for a supply of 75,000 horsepower, the whole of which will be available this year. Of this 25,000 will be utilized by the Laurentide company, and the Shawinigan Water and Power Company has contracted to take the remaining 50,000. In consequence of the important water powers available, the town of Shawinigan Falls is rapidly developing into one of the most important centers of hydro-electric power on the continent. A number of highly important new industries have been established there during the past year.

TRADE MARK
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PAPER

Megargee-Hare Paper Company

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Magarge & Green Company
and
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High-Grade Paper

Book, Bond, Ledger, Cardboard, Writing, Envelopes

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Philadelphia

Two big water-power schemes have been mooted in the maritime provinces. One is to harness the tides of the Bay of Fundy for the development of electric power. The idea is to pump the water into huge reservoirs on the cliffs at Cape Split, N. S., and use the descending water for furnishing power. Incorporation has been granted to a company named the Bay of Fundy Tide Power, Ltd., of Wolfville, N. S., to start development work. The company is capitalized at $50,000, and is headed by three university professors—Dr. G. B. Cutton, Prof. Ralph Clarkson and Prof. W. L. Archibald, of the Acadian University, Wolfville, N. S. The other scheme is for the utilization of the Reversible Falls at St. John, N. B., in like manner. The idea comes from F. S. Small, acting resident engineer of the Public Works Department, who says a stronger current is obtainable at the falls than at Split Rock, and that there would be a longer period between tides for a motor pump to act. For centuries, in summer as well as in winter, these falls have done nothing but frolic along, galloping down stream when the harbor tide is low and reversing their run when the tide has reached its highest point.

Export of Sulphite to Europe

One of the surprises of the year has been the export of sulphite pulp to Europe. Over 10,000 tons have been shipped to English buyers by the Riordon Pulp and Paper Company. There has been some speculation as to whether this means the opening of a permanent market for Canadian sulphite, or whether it is merely a passing phase of the war situation. At anything like the prices prevailing prior to the war, it would be impossible for Canadian mills to compete in the English market with Scandinavian sulphite. Carl Riordon, the vice-president and general manager of the Riordon company, in discussing this point, said he believes when the war is over, and conditions have gone back to a normal basis, the cost of production in Norway and Sweden will be found to have increased through higher cost of labor and capital. This would result in a price for European pulp that might enable the Canadian manufacturer to compete successfully in the English market.

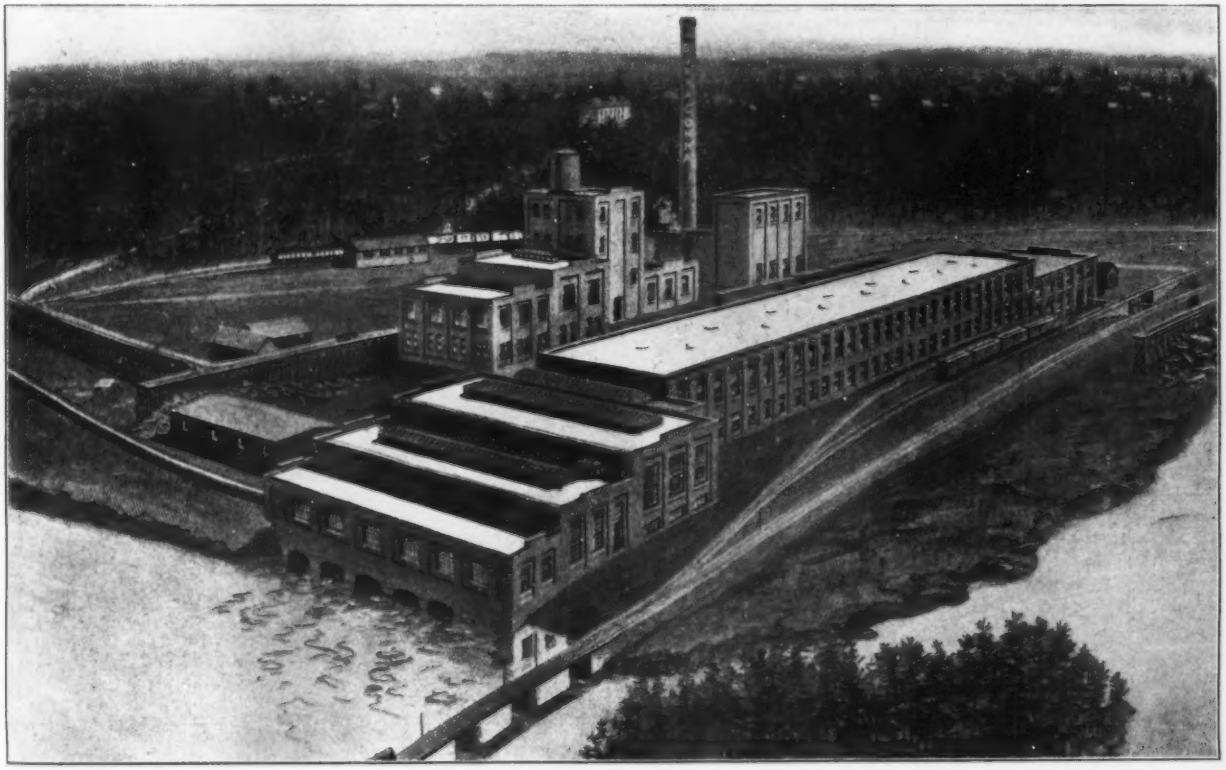
Bright Prospects for Quebec Province

Taken as a whole, it can be said without any reservation whatever that never have the prospects of the pulp and paper industry in Quebec province been so bright as at the present time, and that nowhere in the world is there such a marked development of this industry as Quebec province is now showing. In a New Year's message on the outlook, the premier of the province, Sir Lomer Gouin, put the pulp and paper industry in the forefront of all other developments, and declared that there could be no doubt the province of Quebec was rapidly becoming the most important center of this industry in the whole world.

LEHIGH PAPER MILLS BUY NARDY PAPER CO.

The Lehigh Paper Mills, Inc., manufacturers of paper specialties, whose mill at Pittston, Pa., has an output of eight tons per day, have acquired the plant of the Raubsville Paper Mills, formerly known as the Nardy Paper Mills, located on the bank of the Delaware at Raubsville, Pa., near Easton.

The mill is now being run at full capacity on the same lines manufactured at Pittston, and the Lehigh firm expects to double the tonnage produced, principally by means of attachments to the present machinery. The plant has heretofore had no railroad siding, and is three and a half miles distant from Regalsville, the nearest railroad station. To overcome this difficulty an overhead cable conveyor is to be installed, which will deliver the product across the river to the tracks on the opposite bank, only a thousand feet away.



VIEW OF THE MILL OF THE DONNACONA PAPER COMPANY, LIMITED, DONNACONA, QUEBEC. THIS COMPANY STARTED AN ADDITIONAL MACHINE ON NEWS PRINT LAST FALL.

DOWNINGTOWN MANU

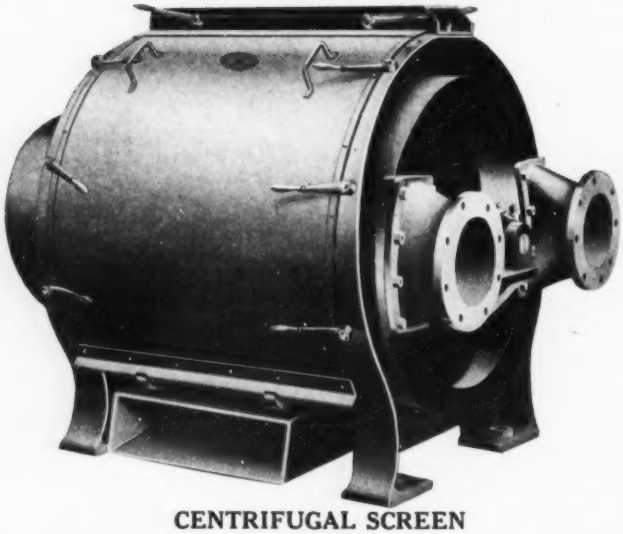
EAST DOWN

FOURDRINIER and CYLINDER
PULP, PAPER, WALL BOARD AND

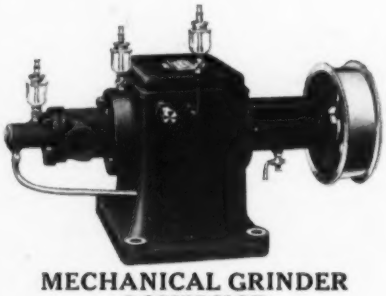
Sole Agents and Manufacturers for UNITED STATES and CANADA for JENSEN og DAHL Kristiania, Norway

PATENTED PULP MILL MACHINERY

BARKING DRUM—GEAR DRIVEN OR HUNG IN CHAINS



CENTRIFUGAL SCREEN



MECHANICAL GRINDER GOVERNOR

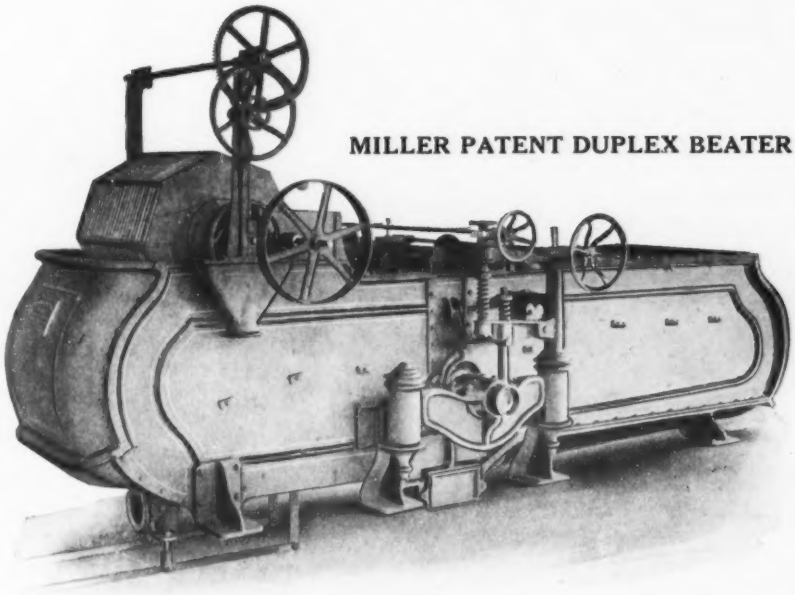
MECHANICAL GRINDER GOVERNOR
ELECTRICAL GRINDER GOVERNOR

WET MACHINES
CENTRIFUGAL SCREENS
BARKING DRUMS
REFINING ENGINES
GRINDERS
PRESS MACHINES
FORE PRESS MACHINES

FACTURING COMPANY

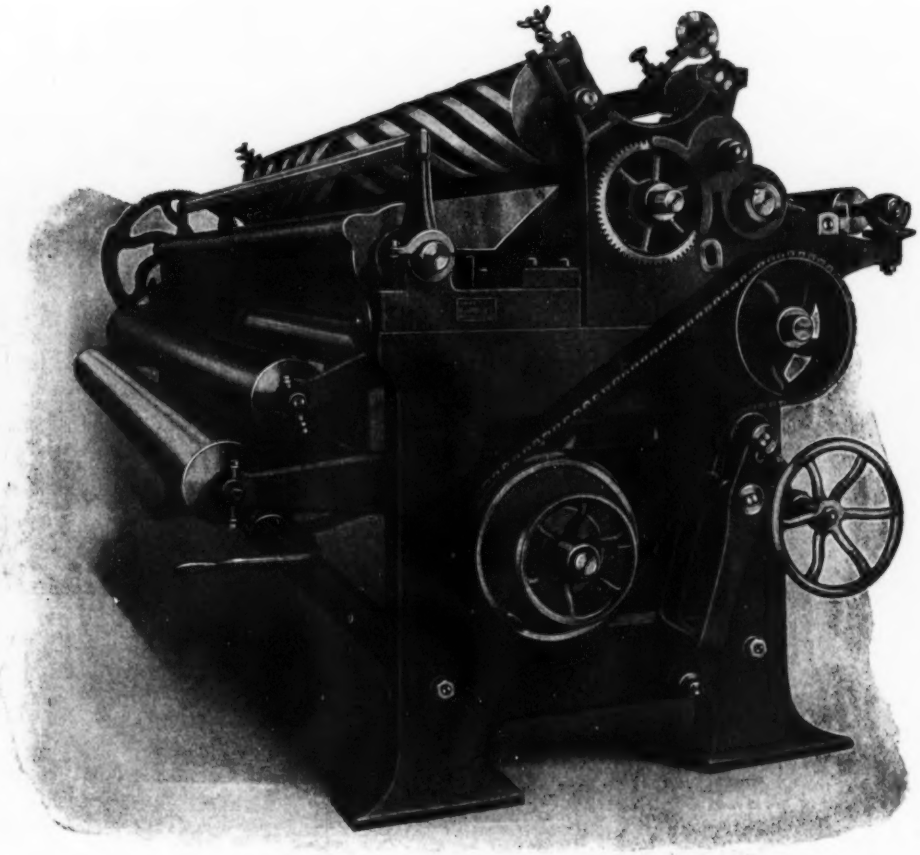
INGTOWN, PA.

PAPER MACHINES
VULCANIZED FIBRE MACHINERY



MILLER PATENT DUPLEX BEATER

Extra Heavy Type Cutter



Single or Duplex

HAMBLET MACHINE COMPANY

LAWRENCE, MASS.

Pulp and Paper Work During the Year of the Forest Products Laboratory

Study of Twenty-four Species of Wood That Might Be Used for the Production of Mechanical Pulp —Investigation into Fundamental Cooking Conditions of Sulphite, Soda and Kraft Processes—Co-operation of the Pulp and Paper Mills Is Earnestly Invited to Give Broader Opportunity for Work.

Written by Dr. Otto Kress, in Charge Sections of Pulp and Paper, Forest Products Laboratory

The Forest Service was created for the purpose of stimulating public interest in our forest resources so as to secure adequate protection of those resources for present and future generations. Later, the management of the national forests was also transferred to the Forest Service, and the activities of the Service are now chiefly directed toward the conservation of the forests as a whole and the proper management of forests actually owned by the public. Generally, conservation carries with it the idea of protection only, but forestry, like agriculture, is a business of marketing a crop as well as growing it. The proper utilization of timber is essential to both conservation and to the best interests of the timber owners, and it should be of interest to the public to know what is being accomplished in the field of forest products as well as forest protection.

In 1910, the United States Department of Agriculture, in co-operation with the University of Wisconsin, established the Forest Products Laboratory at Madison for promoting forest products investigations. The investigations cover a wide field or variety of subjects, which may generally be classified as belonging to Timber Tests, Timber Physics and Kiln Drying, pathology and Wood Preservation, Chemistry and Derived Products, and Pulp and Paper. Most of this work is carried on at the laboratory, which is well-equipped with experimental apparatus, but the ultimate aim with each problem is a practical demonstration on a commercial scale whenever the results warrant it.

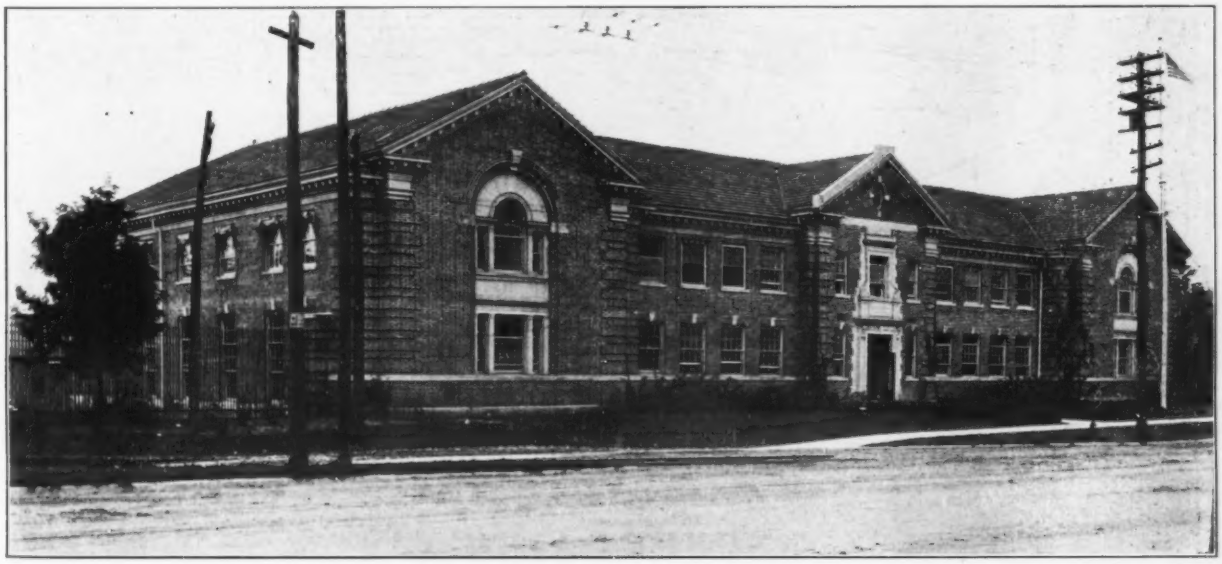
This paper is intended only to review briefly what has been done in one section, Pulp and Paper, during the past year. The section is devoted to the study of problems involved in converting wood into pulp by various means, in developing new sources of raw material, and in the utilization of wastes.

Laboratory Equipment

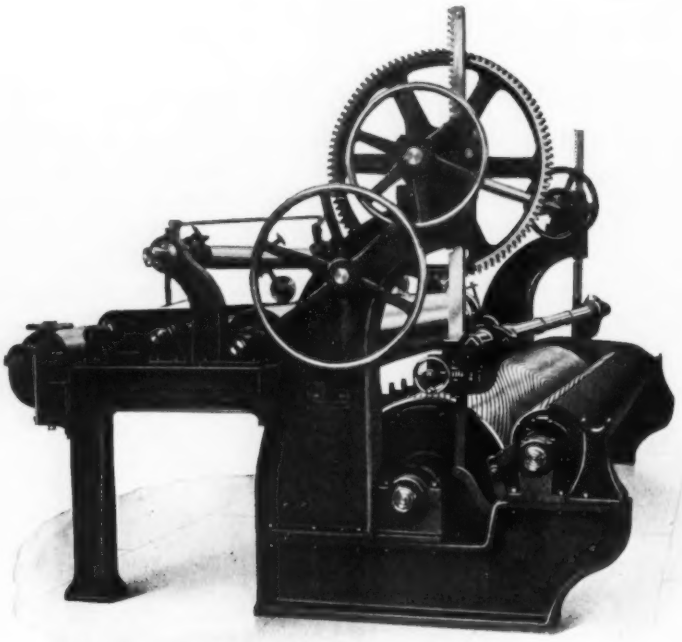
Its equipment consists of:

One two-pocket grinder (stone 26″ diameter, 11″ face).
One semi-commercial chipper.
One 60-gallon semi-commercial soda and sulphate digester.
One 60-gallon semi-commercial sulphite digester.
One 6-plate diaphragm screen.
One pulp shredder.
Two drum washers.
One pulp thickener.
One Kollergang.
One 25-pound and one 50-pound beating engine.
One Jordan refining engine.
One 16″ combination Fourdrinier cylinder paper machine.
One 20″ wet press machine.
One constant humidity room for paper testing.
One paper cutter.

The laboratory is completely provided with acid making equipment, power presses and small experimental apparatus such as two-gallon sized iron and bronze autoclaves, miniature power

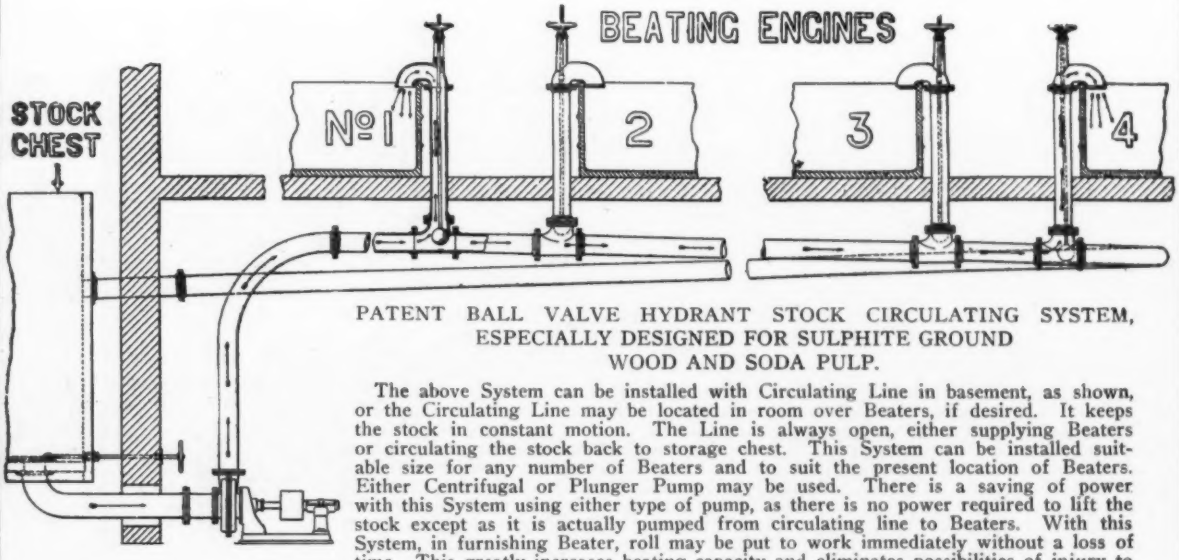


FOREST PRODUCTS LABORATORY, MADISON, WIS.



IMPROVED WARREN PATENT DOUBLE DRUM WINDER

WITH SLITTER ATTACHMENT



PATENT BALL VALVE HYDRANT STOCK CIRCULATING SYSTEM, ESPECIALLY DESIGNED FOR SULPHITE GROUND WOOD AND SODA PULP.

The above System can be installed with Circulating Line in basement, as shown, or the Circulating Line may be located in room over Beaters, if desired. It keeps the stock in constant motion. The Line is always open, either supplying Beaters or circulating the stock back to storage chest. This System can be installed suitable size for any number of Beaters and to suit the present location of Beaters. Either Centrifugal or Plunger Pump may be used. There is a saving of power with this System using either type of pump, as there is no power required to lift the stock except as it is actually pumped from circulating line to Beaters. With this System, in furnishing Beater, roll may be put to work immediately without a loss of time. This greatly increases beating capacity and eliminates possibilities of injury to fly bars that often results from furnishing hard stock to individual beaters.

Manufactured by

TICONDEROGA MACHINE WORKS

TICONDEROGA, N. Y.

screens and beater, hand moulds, paper testing equipment and apparatus for bleach and dye evaluation.

Experiments in Groundwood Pulp

Our bulletin 343, entitled, "Groundwood Pulp," was published supplementing the work of the Forest Service as published in the previous publications, namely, "Experiments with Jack Pine and Hemlock for Mechanical Pulp" and "The Grinding of Spruce for Mechanical Pulp." This bulletin includes the results of the study of the fundamental conditions that govern the grinding of wood and the study of the possible utilization of twenty-four species of wood that might be used for the production of mechanical pulp. This work was conducted at a branch laboratory established temporarily at Wausau, Wisconsin, using commercial apparatus and a wide range of conditions. These experiments show that the spruces, firs, hemlocks, lodgepole and western yellow pine, and tamarack, are suitable for the manufacture of a grade of ground-wood pulp that can be used in the manufacture of news print paper. The actual tests made on the printing of papers on commercial presses in which ground-wood from the above-named species was used, the pressmen expressed entire satisfaction in the manner in which the paper ran through the presses.

News print made from these groundwoods showed a variation in color and a study was undertaken with the Department of Psychology, University of Wisconsin, to determine the effect of color on eye fatigue. It was found that the slight variation of color incident to the use of different groundwood stocks, made by grinding different species of wood had no effect on eye fatigue. This matter of color or news print paper is one of more fancied than real importance, as at the present time due to lack of dyestuffs, practically all news is made in the natural shade. It is doubtful if the average reader has even noticed any difference in color between his present newspaper and that made under normal conditions.

Cooking Conditions of Various Processes

The investigations into the fundamental cooking conditions of the sulphite, soda and kraft processes have been continued. In the sulphite process the influence of total SO_2 the ratio of free to combined SO_2, and the influence of temperature were studied in the pulping of white spruce in order to determine the effect of these variables on time of cooking, yield of screened pulp and screenings, and bleach consumption. The resulting pulps were all run into paper in the form of waterleaf and tested for color and strength. These experiments were all made on a 100-pound scale and many difficulties were encountered in attempting to hold all conditions constant except the variable under examination. The results of this work will be published in bulletin form in the near future.

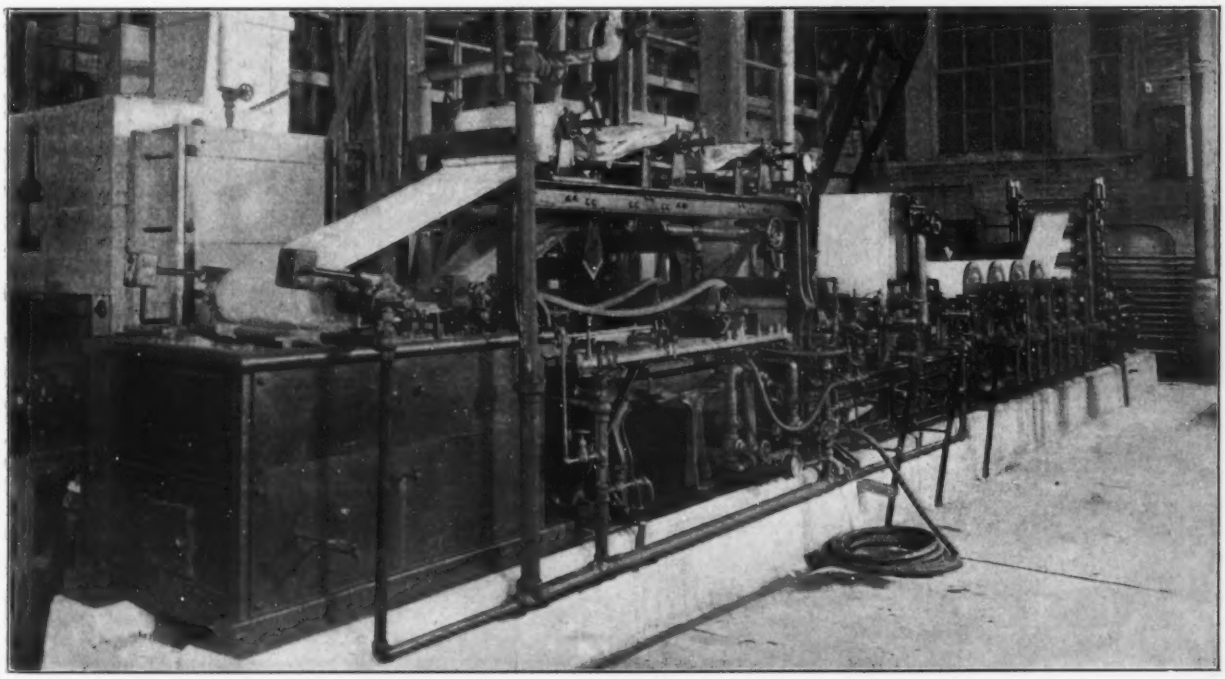
A series of sulphite cooks were run to study the effect of forced circulation of the liquor during the cook on the yield of screened pulp and screenings, on time of cooking, bleach consumption, and on color and strength of the finished paper. In general, the only effect noted was one of saving in time and the results of this work will soon be published.

A series of cooks were made using the sulphite process to determine the acid-resisting qualities of twenty-nine different alloys against the corrosive action of bisulphite liquor. The results of these experiments were published during the past year.

Pulp Making Qualities of Various Woods

At the present time an intensive study is being conducted on the pulp making qualities by the sulphite process of various woods, especially of the western woods. The object is to produce a strong pulp of maximum yield with minimum screenings and bleach consumption and to determine the general cooking conditions best suited for the reduction of the different species of wood to a suitable pulp condition.

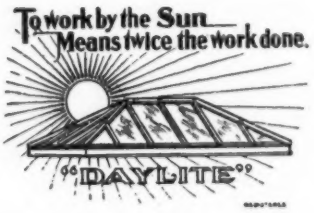
In the investigations dealing with the kraft process of pulping a great deal of work has been done especially as relating to the kraft pulping of southern yellow pine. Some sixty odd semi-commercial kraft cooks have been made on long-leaf pine under



PAPER MACHINE FOR EXPERIMENTAL PURPOSES AT THE FOREST PRODUCTS LABORATORY, MADISON, WIS.

The Right Light For Paper Mills Is

"DAYLITE"



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varying conditions and their effect studied on the yield and strength of the finished pulp and paper. In this connection some kraft cooks were made on extracted longleaf pine chips and no difficulties were experienced in pulping such chips, and making a fair grade of kraft wrapping paper or board. The chips as supplied by the extraction plant contained a very large percentage of dust and fine slivers which would tend to give a low yield with high chemical consumption. The results indicated the desirabilty of proper screening and using for the preliminary extraction the largest sized chips compatible with good extraction and solvent recovery.

In order to obtain data as to whether the barking of pulpwood is essential preliminary to pulping, comparison runs were made by the kraft process on cleaned wood and on uncleaned chips with 4 per cent bark, and also on clear longleaf yellow pine bark. The results obtained indicate a chemical consumption by the bark of about 39 per cent based on the weight of the bark, while the product obtained from the pulping of bark was of a slimy nature which was of no value for pulp and paper purposes. The additional cost in chemicals in pulping uncleaned wood makes it advisable for such mills as follow this practice to compare the cost of barking to that of pulping the unbarked wood.

Study of Woods for Kraft Pulp

An intensive study has been undertaken of the general pulping conditions of the various woods suitable for the manufacture of kraft pulp. A number one grade of kraft pulp testing well over a point to the pound has been prepared from the following woods: tamarack, white, red, and Sitka spruce, balsam, amabilis, Alpine, noble, and Douglas fir, jack pine, longleaf, western yellow, and lodgepole pine, and eastern and western hemlock.

In connection with this work the laboratory has developed both detailed and rapid control methods of analysis for white and black liquors.

With the soda process especially as relating to the pulping of aspen, considerable work has been done to supplement our Bulletin No. 80, entitled, "Effects of Varying Certain Cooking Conditions in Producing Soda Pulp from Aspen." The results of this work have been published during the year in various papers. Studies were made especially as regards the influence of blowing pressure on the bleach consumption, and the causes of the "fuzziness" of the finished sheet. Effects on the influence of dilution during the progress of the cook on the yield of pulp have yielded very interesting results. During the past year most of our soda pulping was confined to the study of the general conditions best suited for the pulping of aspen, but studies were made on the soda pulping of extracted chestnut wood, red and black gum, black willow, and cottonwood.

Variables in Sulphite Pulp

Considerable work has been done during the past year on the study of the effect of the different variables during the beating of sulphite pulp. One of the difficulties experienced is that for each position of the beater roll, the combined result of all the variables is shown by both brushing and cutting of the stock. In this connection, it is interesting to note that the sedimentation tester which is ordinarily used for determining the slowness of stock gave in some cases higher readings with a stock where the cutting action had predominated over the brushing action as shown by the microscope.

Shade and Depths of Color of Paper

During the past year a rather extensive investigation was conducted to arrive at some accurate method of numerically recording shade and depth of color of paper. The Ives Tint Photometer was used, and we have found that with certain limitations we could satisfactorily record color. Further work is needed to determine the effect of certain variables such as glare and the nature of the surface of the paper under examination. The glarimeter was used in conjunction with some of this work and it was found that color had a decided influence on the percentage glare of the paper, making the glarimeter of little value for determining the percentage glare of colored papers.

Special Test Room Installed

In order to test all papers made at the laboratory, under standard humidity conditions, a special room supplied with constant humidity apparatus was installed at the laboratory and all our papers are now tested in this room under constant humidity control. A series of commercial papers were tested under varying conditions of relative humidity and it was found that increasing the relative humidity caused a decided decrease in breaking length and points per pound, with an increase in folding strength and percentage stretch. The results of this work which will be published in the near future brings out the importance of testing paper under a definite constant humidity, and all our papers are now tested at the laboratory at a relative humidity of 65 per cent.

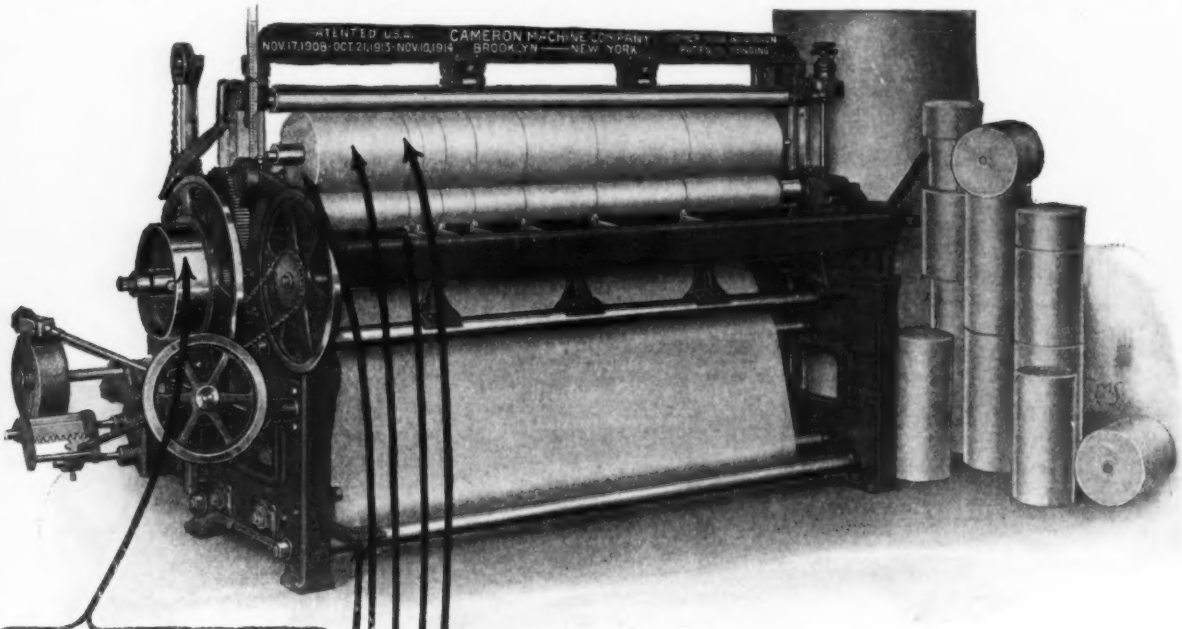
Bark for Pulp and Paper Purposes

The ever increasing price of pulpwood has led the laboratory to investigate the possible utilization of bark for pulp and paper purposes. Waste bark is produced as a by-product from the barking of pulpwood preparatory to grinding, or chipping, from the tanning industry in the form of spent tanbark from the extraction plant, from the veneer industry, and from certain lumbering operations such as the lumbering of cypress and redwood. The pulp and paper industry of the United States consumes approximately 4,300,000 cords of wood, practically all of which has to be cleaned preparatory to pulping, while according to our last census of 1909, 698,365 tons of hemlock bark were used by the tanneries. The bark removed in the drum barking of pulpwood is practically valueless, while the waste tanbark from the leaches, 35 per cent dry, has a fuel value of 60 cents in comparison with $3 for bituminous coal. While attempting to utilize spent tanbark at the laboratory for roofing felt, and later in co-operation with a tannery, felt mill and saturating plant, the commercial utilization of tanbark for roofing felt was developed. Our cooperators report that at certain felt mills having a daily production of 50 tons of felt they are using approximately 60 tons of dry bark a week at the present time. Other possible uses that suggest themselves are the use of waste tanbark in the manufacture of indurated fibre ware, wall paper, sheathing paper and deadening felts, fiber conduits, etc.

Spruce or balsam bark might be used in the manufacture of wall board and the more fibrous barks such as redwood bark, might be used for insulating purposes. Each mill considering the possibility of using waste bark will have to determine whether they can substitute in part a more expensive stock and still maintain the quality of the sheet.

Cooperation of Mills Requested

We have described briefly the more important activities of the Pulp and Paper Section during the past year. A considerable number of smaller problems confronting the individual mills have been brought to the attention of the laboratory and were studied as being of general interest to the industry. During the coming year further work will be done on the investigations now under way. The field for future work is unlimited and the cooperation of the pulp and paper mills is earnestly desired to give opportunities to test out on a commercial scale any modifications of the processes, where laboratory investigations indicate possible economies or improvements. If the manufacturers would bring their technical problems to the attention of the laboratory, and if the problem is one whose solution is of interest to the industry, cooperative work of mutual interest and advantage might result. In this way, the laboratory would be able to concentrate on problems of vital interest to the manufacturer and so help to advance to some extent the technical knowledge of the pulp and paper industry.



High Speed Drive

Treadle Control Variable Speed

Even Edges

Firm Even Tensioned Rolls

Quick Change of Cutters

Clean Cut

A FEW Important Features of the Cameron Principle Slitting and Rewinding Machine

The advantage of the Cameron "Score Cutter" method, considered apart from the fact that it is the ideal method to combine with the Surface Rewind, may be summed up as follows:

1. The "Score Cutter" does perfect work on any kind of paper made, as well as fabrics and other materials.

2. The "Score Cutter" gives a clean, smooth slit and does not stretch the edge of the paper.

3. The "Score Cutter" will operate perfectly at unlimited speed as there is practically no friction or wear on the cutting edge.

4. The "Score Cutter" need not be kept to any special diameter, as the pressure spring will take up any variation.

5. The "Score Cutter" does not have a keen cutting edge, but an edge slightly blunt like a cold chisel, and it is easily kept in prime condition by the operator.

6. The same features which make the "Score Cutter" efficient for light duty, make it equally serviceable for heavy duty, as it will handle work from the sheerest tissue paper up to box board.

7. Re-spacing of "Score Cutter" is quickly done by simply releasing the spring pressure on all the cutters at once, and sliding the cutter holders to the new positions.

8. Re-spacing of "Score Cutters" requires only five to ten minutes for any new arrangement of widths. When Gang Spacers are used for narrow strip, even less time is required.

9. Removing or replacing a cutter requires only to lift it on or off its support—holder and all—without disturbing any other cutter or any part of machine.

10. Any width or assortment of widths can be spaced from one-quarter inch up.

11. Strip as narrow as one-quarter inch can be produced by special "Score Cutters."

12. The waste or trim at the edges may be extremely narrow.

13. The rolls produced do not interweave or stick together.

14. Injury to the operator by this method of slitting is impossible.

CAMERON MACHINE COMPANY

57-61 Poplar Street, Brooklyn, N. Y.

Kalamazoo River Valley Has Prosperous Year

Conservatively Estimated That Improvements Just Completed and In Progress in the City of Kalamazoo Alone Will Exceed $2,000,000—Practically All of the Important Concerns Have Increased Their Facilities—Monthly Payrolls of the Mills Also Have Been Increased.

Written for the Annual Number of the Paper Trade Journal by Howard P. Hall.

The year 1916 can easily be counted as one of the most prosperous and interesting in the history of paper making in the Kalamazoo River valley district. The growth of the industry was marked by the extensive enlargements and improvements completed and inaugurated by the many mills in the district; the increase in the capital invested and the widespread concessions made for the betterment of employees of all classes.

Both Stockholders and Labor Benefit

Managers of the various mills admit that the prosperity of the last twelve months has exceeded that of any similar period in the history of the industry. Stockholders have reaped handsome dividends on their share holdings, while labor has shared equally through the great increases in wages and through the shortening of the hours of labor.

To the community in general the benefits to labor have been the most important. Early in January, 1916, Vice-President Smith of the International Papermakers came to Kalamazoo to demand a recognition of the union and the eight-hour day by the book mills. Previous to his coming the managers of the various mills in the valley had been in conferences together and with their employees and had decided to give their employees individually all the privileges demanded by the union. The result was that the book mills granted the following benefits:

Tour workers—Three shifts daily of eight hours each, making a total of 48 hours per week, instead of 65 and 72 hours respectively as in the past. There was no reduction in wages.

Day workers were kept on the regular nine-hour schedule daily, but at a substantial increase in pay.

These concessions were granted by the Bryant Paper Company, King Paper Company, Kalamazoo Paper Company, Monarch Paper Company, Hawthorne Paper Company, Vegetable Parchment Paper Company, Riverview Coated Paper Company and Rex Paper Company, all of Kalamazoo; Lee Paper Company, Vicksburg; Michigan Paper Company, Plainwell; Watervliet Paper Company, Watervliet; Bardeen Paper Company, Otsego Coated Paper Company and Babcock Tissue Manufacturing Company (now the Wolverine Paper Company), of Otsego.

The four board mills—Western Board and Paper Company and Standard Paper Company, Kalamazoo; MacSimBar Paper Company, Otsego, and the Eddy Paper Company, Three Rivers and White Pigeon—were not included in the demands of the union.

Frank H. Milham, president of the Bryant Paper Company, signed the union agreement. The heads of the other book mills declined to make this concession. Some of the hotheads tried to make trouble and incipient strikes ensued at the King Paper Company, Riverview Paper Company and Monarch Paper Company. They were of little moment and so skillfully handled by the various managers that a short period saw practically all the workers back on their jobs and glad to accept the privileges offered.

Reports by the managers of the various mills show that the concessions granted have increased their respective monthly payrolls from 30 to 40 per cent., the aggregate increase in the valley being about $2,000,000.

Invested Capital Shows Big Gains

Another evidence of the expansion of the industry has been the increase in capital invested. During the year 1916, the additions in stock totaled $4,675,000, while bonds to the value of $700,000 for improvements found a ready sale. Of the increase in stock, $2,490,000 was in the form of stock dividends, while new stock to the value of $2,185,000 was sold.

The Bryant Paper Company leads the procession, jumping from $3,000,000 common and $200,000 preferred to $6,000,000 common and $200,000 preferred. A stock dividend of $1,500,000 was declared and then 50,000 shares of stock were offered at $15 a share, the issue being largely over-subscribed.

The Vegetable Parchment Paper Company advanced from $335,000 to $1,000,000. A 50 per cent. stock dividend increased the original capital to $500,000 and an additional $500,000 issue was sold, the money to be used for the erection of the new two-machine mill.

The stockholders of the Watervliet Paper Company authorized the directors to sell $200,000 in treasury stock, increasing the capital from $400,000 to $600,000.

Important Changes at Otsego

Two important changes were made at Otsego. The Bardeen Paper Company expanded from $175,000 to $1,000,000 capital and absorbed the Otsego Coated Paper Company. The Wolverine Paper Company was organized with a capital of $150,000 and purchased the business and plant of the Babcock Tissue Manufacturing Company.

The three bond issues above mentioned were: Rex Paper Company, $100,000; Hawthorne Paper Company, $200,000; Riverview Coated Paper Company, $400,000.

During the twelve months just elapsed three paper machines were added to the equipment in the valley, while the enlargements in progress will add three more during the coming summer. The Rex Paper Company started its new one-machine mill in the latter part of June. The product is high grade book paper. The Hawthorne Paper Company, manufacturer of fine bonds and ledgers, enlarged its plant from a one- to a two-machine mill, spending over $200,000 in the improvements. The Eddy Paper Company, which operates plants at Three Rivers and White Pigeon, installed in the latter plant a board cylinder machine that produces a sheet 92 inches wide. The power plant was enlarged and a new stock and finishing room, 212 by 72 feet, three stories was built.

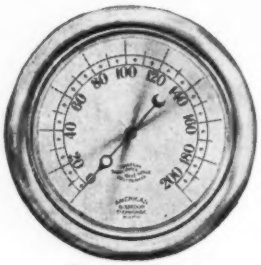
Other Mills Also Spent Big Sums

Other mills in the valley also spent large sums for betterments.

The Standard Paper Company erected a new stack and entirely renovated its mill throughout.

The King Paper Company erected two buildings, one a

AMERICAN
High Grade Steam Specialties



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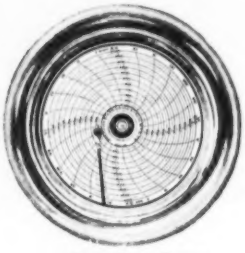
which have been on the market for SIXTY-FIVE years are worthy your consideration.

Each appliance has our unqualified guarantee of satisfactory service when properly used and in many cases repair and upkeep expense will be found greatly reduced.



Recording Gauge

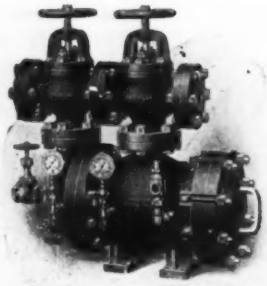
Our manufactures include Single and Double Spring Bourdon Gauges, Plain and Recording. Single, Duplex and Triplex Pop Safety Valves for Stationary and Marine use and meeting the requirements of English, French and all Shipping Bureaus.

Engine Room Clocks, Revolution Counters, Water Gauges, Gauge Cocks, Plain and Chime Whistles, Relief Valves, Iron or Brass, for Steam, Water and all Pressures; American Grease Extracting Feed Water Filter, Improved Indicators for American - Thompson Steam or Gas Engines, American Ideal Steam Traps and American Thermofeed Feed Water Regulators.

Portable Pop Safety Valve

American Thompson Engine Indicator

Steam Whistle



American H_2O Grease Extracting Feed Water Filter

Stationary Pop Safety Valve

American Ideal Steam Trap

AMERICAN STEAM GAUGE & VALVE MFG. CO.

Main Office and Factory:—BOSTON, MASS., U. S. A.

New York Chicago Pittsburgh Atlanta

three-story stock house, 40 by 200 feet in size; second a stock shed, 30 by 120, one story. The Sturtevant drying system has been installed under the nine coating machines and seven artesian wells and pumping equipment to furnish 7,000,000 gallons of pure water daily were added. These and other improvements necessitated an outlay of over $100,000.

The Kalamazoo Paper Company is spending $200,000 on a six-machine coating plant and new turbine station. The Bryant Paper Company has expended about $100,000 in renovating its immense plant and improving conditions on the grounds about the mill.

It is conservatively estimated that the improvements completed and now in progress in the city of Kalamazoo alone will exceed $2,000,000.

At Otsego the Bardeen Paper Company is spending over $100,000 on improvements, while the Wolverine Paper Company after its purchase of the plant of the Babcock Company installed betterments at a cost of over $50,000.

NEW SODA PULP MILL AT KINGSPORT, TENN.

One of the most interesting of new mills is the thoroughly up-to-date soda pulp mill just being completed by the Kingsport Pulp Corporation at Kingsport, Tenn., which will be in operation in a few weeks at most. As ground was broken for the new plant only last March the entire construction will have occupied just about a year.

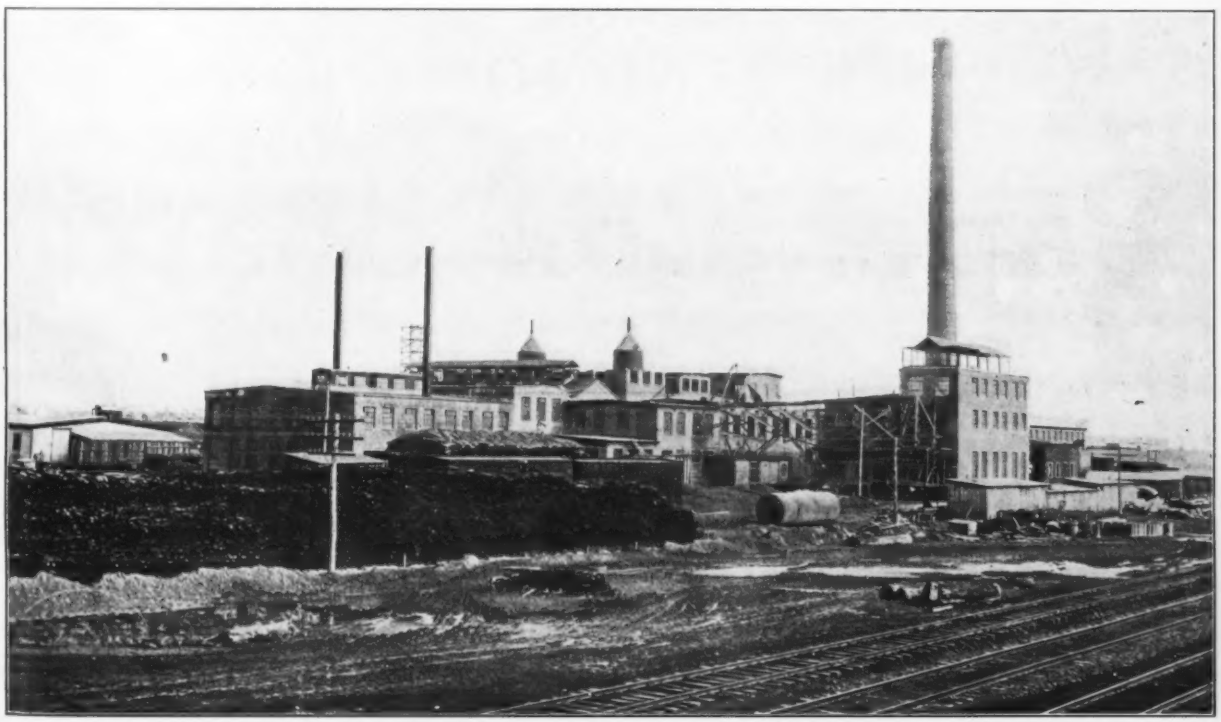
In spite of the fact that this mill is located in new territory for the pulp and paper industry—there are no other wood pulp or paper mills in the State of Tennessee—under the direction R. B. Embree, president of the corporation, it is installing all the most progressive ideas in mill equipment. Perhaps the most interesting feature will be the new causticizing process employed in connection with the soda recovery department.

This process has the advantages over the usual system of reducing the amount of labor necessary and insuring a highly uniform liquor for use in the digesters. The system is known as the Dorr system of continuous agitation and continuous counter-current decantation. It is already in general use in metallurgical processes, but has never before been employed, it is said, in the paper making field. The notable point of the system is a continuous belt conveyor, which makes it possible for one man to properly operate it. The soda to be causticized is stored in bins and fed to the tanks on the conveying belt. The lime to be used in the process is crushed and likewise kept in storage bins, from which it is supplied in measured amount by a moving conveyor.

The recovery department of the mill consists of two buildings, the first measuring 66 by 74 feet and containing the incinerators; the second, 27 by 91 feet, and containing the evaporators. The digester building measures 107 by 25½ feet, and houses ten welded digesters 30 feet in length and 7 feet in diameter. The blow-pit room is 28 by 107 feet.

The pulp bleaching department is contained in a building 119 by 54 feet, in the lower floor of which are six Bellmer concrete bleachers, while on the floor above are the pulp screens and washing machines. The dry machine room is 40 by 271 feet, and contains bleach-washing and drying machines. There is a boiler house of the most progressive type, in which all the handling of coal and ash is done by automatic machinery. The plant also has a thorough equipment of repair shops, wood house, filter house, pumping station, wood handling apparatus, and other auxiliary buildings. The building of the mill was in charge of Architect George F. Hardy, of New York.

The officers of the Kingsport Pulp Corporation are: Royal B. Embree, president; C. H. Hartman, secretary and treasurer; Robert S. Walker, superintendent.



New Soda Pulp Mill of the Kingsport Pulp Corporation.

ARTHUR McEWAN
Treasurer and General Mgr.

R. B. McEWAN
President

J. L. McEWAN
Vice-President

R. W. McEWAN
Secretary

McEWAN BROTHERS

MANUFACTURERS OF

NEWS AND FOLDING

Paper Box Board

OFFICES AND MILLS AT
WHIPPANY, N. J.

STONY BROOK MILLS NOS. 1 & 2
EDEN MILLS NO. 3
LINING PLANT

TELEPHONE CONNECTION

Forestry and Forest Products for Pulp

Planting, Cultivating and Harvesting of the Wood Should Receive the Same Serious Attention as the Staple Crops in Agriculture—This Harvest Should Be Studied with a Higher Degree of Intelligence and Efficiency Than It Has Been, With a View to Obtaining Its Whole Value.

Written for the Annual Number of the Paper Trade Journal by Martin L. Griffin.

Studies in efficiency have come to be the rule and no longer the exception. Society, with its rapid growth in population, science and industry is obligated to pass along a record of worthy achievements and to use nature's resources in a way which shall not impoverish the future. These resources possess, in some degree, an intrinsic and a relative value. The minerals of the earth, containing gold, silver, copper, iron, also coal and petroleum, possess a great direct value in themselves. The taking of these from the earth depletes the supply, but exerts no influence on climate, rainfall, stream flowage or the healthfulness of the locality. How different in value are the resources of the earth's surface, the forest, lake and stream and the harvest of agriculture. These possess not only intrinsic values, but often their related values are much greater. Cities are built upon the banks of rivers for their immediate beauty and utility, but their value in water power and to commerce is greater. Our forests possess great wealth in the value of their woods, but if these same forests conserve rainfall and stream flowage and their destruction causes floods, drought and desert places, what additional value must we give them? There is therefore a much greater obligation laid by society upon those who control the wealth of our forests and streams. Governments recognize these extensive rights on rivers. One community cannot pollute or withdraw the water to the injury of another. What compensation therefore should be made by those interests which take the forests for the value of their wood, regardless of the consequences?

Two Propositions of Paramount Importance

Two propositions are of paramount importance in this connection. First, the planting, cultivating and harvesting of the wood should receive the same serious attention as the staple crops in agriculture. Second, this harvest of forest growth should be studied and handled with a higher degree of intelligence and efficiency than it has been, with a view to obtaining its whole value.

Raw products, whether natural or manufactured, can be greatly enhanced in value by sorting, grading and standardizing. This process of refinement classifies materials which are, to a greater degree, alike in form and composition; any subsequent treatment of the classified grades can be taken up with greater economy and improved results. Values are lost because of impurities, for lack of intelligent means of refinement. The same is true when impurities are dominant. Old mines have been reworked on a profitable basis. Culm banks have been worked over, and furnaces adapted to burn these small sizes of anthracite with great savings. We are still pursuing the ultimate values in coal and crude petroleum by more scientific treatment. In our effort to secure the greatest values from the forest trees, we may draw some inspiration from the efficient development of the great packing house corporations, when practically every part of the animal carcass is converted into useful products.

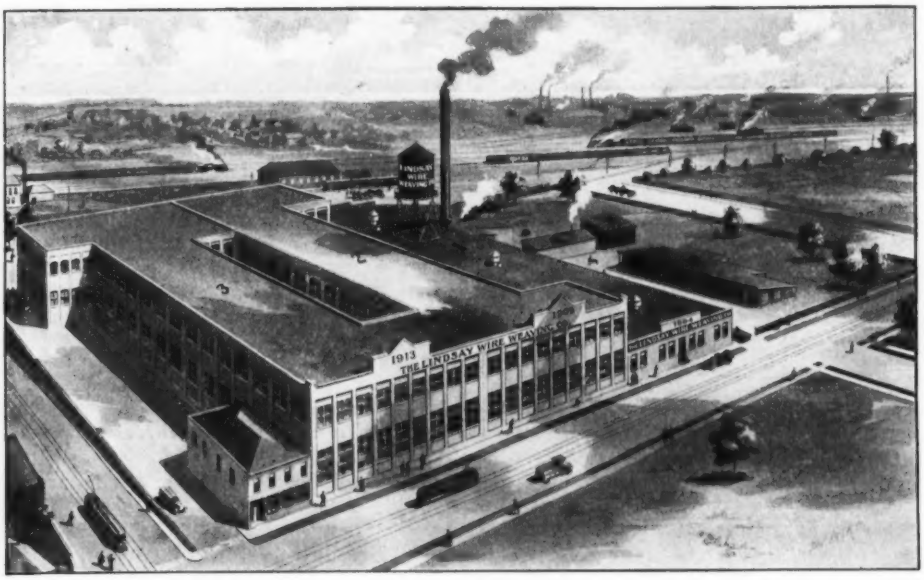
The harvesting of wood products must soon be viewed in the light of present conditions. In the early days of the use of wood for pulp the mills were located near the supply or on rivers tributary to them. It was sufficient to cut the tree and float the log to the mill, where slabbing or rossing or other wasteful methods were employed to prepare the wood for the pulping process. It has been taken for granted that there was no way to lessen stumpage losses and to make a more economical use of the smaller sizes, limbs and top of the tree. Losses in rossing, sawdust and screenings of both chips and pulp at the mill have been taken as a matter of course. The obtaining of the wood supply and its preparation have been treated as a part of the management of the mill, as if it required no special training or experience. With the receding supply and the increase in size of the mills they have been forced to delegate a part of this work to contractors. The day of the small wood pulp mill is giving place to the large corporation organized with various important divisions, one of which must be forestry and the harvesting of wood products. To begin with, these corporations must acquire an existing stand of timber and perhaps a contiguous territory for reforesting, and proceed at once with a rational treatment of them to perpetuate the supply. These limits should be selected, so far as possible, in large areas, suited to a natural and rapid growth of the species desired, and with a view to economy in treatment and cost of transportation of the products. To the cost of harvesting the present stand must be added a sum which will reproduce an equal quantity of wood in due course. Systematic forestry must soon become the foundation stone of our great print paper industry; there is no escape from it, and there is no more opportune time to begin to prepare for it Let it be fully understood that this undertaking must be placed in the hands of men trained and experienced in it. It will require as high a degree of intelligence and skill as it takes to operate the pulp and paper mill. The mill superintendent is no more fitted for forestry than a trained forester is fitted to beat stock or run a paper machine.

Having now indicated the importance of systematic forestry, and how the subject should be viewed as a permanent source of supply of wood products, we will pass on to the second phase of the subject, the harvest of the forest growth in products of wood.

Products Manufactured at Forest Source

These products will be manufactured at the forest source only to such an extent as to be able to grade, classify and prepare or pack for economical transportation to the mill or market. The machinery and appliances to do this work must, generally speaking, be of the light temporary, "knock-down" type, which can be moved from place to place or, in some cases, partially abandoned.

The small portable sawmill is a convenient illustration. Roads and sources of power should have a good degree of permanency.



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Cylinder Covers and Washer Wires

for Pulp and Paper Mills

all made by

THE LINDSAY WIRE WEAVING CO.

Collinwood Station **Cleveland, Ohio**

At this point let us discuss the unit basis of values for wood products other than dimension lumber. What shall be the rational and practical unit of measurement for wood products to be made into pulp and paper? We would not think of buying and selling paper by the cubic foot, but it would be much more rational than the practice of buying the raw material of varying quality by the cord. The cord unit has come down to us as the measure of fire wood when wood had very little other use. The factors influencing the volume of solid wood in the cord have been known and discussed for many years, but custom is so strong, and the fact that wood has usually been cut in dimensions to be corded up, and that no better standard has been made available, the cord unit has persisted. We shall come to see that, with the exception of wood for ground pulp, the chip form of wood and a unit of volume and weight are more rational instruments for valuing and dealing in wood for pulp and paper making.

Classifying and Standardizing Products

In the discussion of the ultimate economical wood products to be derived from forest growth, we will limit ourselves to those species commonly used for pulp and paper. Our endeavor will be to put as little labor as possible into the products and to carry the processes only so far as to utilize, classify and standardize products of wood from the tree and to put them into merchantable shape for transportation. We shall attempt to make those products which lie normally close to nature at their source and are adapted to further processing in well established industries.

First and foremost, the two main products will be either clean wood in suitable dimensions for transportation and manufacture into ground wood pulp; or, second, clean chips of recognized quality for transportation and manufacture into chemical pulp. Only the large size parts of the tree can be used for the first product, while all parts, including tops and limbs, so far as they can be handled economically, may be converted into chips for the other principal product.

Many important advantages and economies will be secured, both to the producer and user of wood for chemical pulp, by this conversion. Mechanically, this chip product is graded and standarized. A unit either of volume or weight, or volume and weight may be established easily, so that the purchaser may know definitely what quantity he is buying. The chip form of wood permits of artificial drying, when desirable, to save transportation costs. It has been proven practicable to compress chips into the same volume that the wood occupied in the cord dimension and bale it securely.

Dealing with Small Parts of Tree

In order to deal effectively with the parts of the tree of small dimensions, after it has been felled and its branches stripped of twigs and foliage, light portable saws and conveyors should follow on the heels of the choppers, and cut up the branches into small blocks a few inches in length. At the delivery end of the conveyor the sawdust should be separated from the wood, while the blocks would pass directly to a wet tumbler to remove the bark. Thence it would pass to a light chipper and be reduced to chip form, and finally dried and baled for shipment. The continuous tumbler, or barking drum, should be used for removing the bark from all classes of wood, and where the bark contains valuable soluble extractive matter, as tannin, the water should be strained and pumped around until a high degree of concentration of the valuable extract has been reached, when it may be piped to an evaporator and brought to commercial strength. This feature of the process may be made continuous.

It has been proven that the bark can be used in conjunction with a strong, coarse fibre to make a wood board suitable for many uses. After coming from the tumbler it may be pressed into bundles or brought to its final state at once. The latter is much more practicable where the plant has some degree of permanency, as the material in crude form will not bear much expense, and whatever labor and expense is put upon it should not be lost in the process to its final form.

Sawdust Should Be Gathered

The sawdust resulting from the sawing and chipping should be gathered and screened to graded sizes, and given such treatment as will fit it for the many uses to which it is adapted. Among such uses are the manufacture of artificial wood and plastic compositions, the manufacture of blasting powders, in the clay-working industries for making porous tiles, as a packing material and for wood flour and pulp. The machinery for screening, drying and grinding is very simple.

Finally, the sawdust products should be compressed and baled securely in burlap for shipment.

Slivers and shreds from the various processes should be collected and pulped up by a mechanical wet process, and mixed with the bark pulp in the process of making box lumber.

In our treatment of forest trees suitable for the pulp and paper industry we have accounted for the entire tree, except the roots, twigs and foliage. From it we have shown practical products of wood ready for the pulp grinders and digesters, box lumber from bark and slivers, various sawdust products and merchantable tannin extract, and how all of these may be packed for transportation.

Regarding the source of power for these operations, plans should include a source of electrical power, which will be found very practical. Where steam is required for drying and evaporating, a steam plant of size suitable for the work to be performed may be installed to furnish power. Whether coal or waste wood shall be used as fuel will depend upon the cost of coal and the value of the wood products sacrificed to furnish fuel. I believe, however, that values in these waste wood products can be created, which will considerably exceed their fuel value when compared with coal.

Should Insure for Ourselves Forest Benefits

The history of the manufacture of pulp and paper from wood is practically all comprised within the last thirty years. We have witnessed a phenomenal growth in the manufacture and uses to which paper may be put. We have observed the sawmill giving place to the pulp mill, and the receding and vanishing boundaries of the forests disappearing altogether. Persistent search has been made for other sources of raw materials as substitutes for wood, and a good quality of paper can be made from the waste of several plants of annual growth, but none of these can compete in any sense with wood as a source of paper pulp.

Insurance is protection against that day of doom which will one day overtake us. We recognize that "preparedness" is insurance of government and national existence; conservation and efficiency the safeguards of our natural resources; compensation for the individual against accident and loss of life. In these prosperous times we should insure to ourselves the great and lasting benefits the forests and streams give us by energetic and prompt action toward reforestation and a more rational and efficient harvesting of the wood. There will be no more opportune time than the present to begin this great work.

The Consumers' Boxboard and Paper Company, Lancaster, Pa., has elected the following directors: H. R. Gibbel, C. B. Risser, L. F. Stone, B. B. Leeman, Henry S. Keener, Samuel E. Lane, H. J. Pierson. The board organized as follows: President, H. R. Gibbel; vice president, S. E. Lane; secretary, J. F. Stone; treasurer, C. B. Risser; manager, H. J. Pierson; superintendent, H. C. Couch.

MARATHON PAPER MILLS COMPANY

ROTHSCHILD, WIS.

Specialties in Manufacture

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High grade Bleached and Unbleached papers of distinctiveness for re-manufacturing purposes, ranging in weights from 24 x 36-20—480 to 24 x 36-350—480.

Four Machines

1 4-Mould Cylinder Machine, - Trim 100 inches
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2 M. G. Yankee Fourdrinier Machines, Trim 120 inches

DAILY CAPACITY	Pounds.
Unbleached Sulphite Pulp	200,000
Bleached Sulphite Pulp	150,000
Groundwood Pulp	50,000
Paper	200,000

Regular Grades

Bristols
Document Manilas
Folder Stock
Sulphite Bond
Waxing Papers
M. G. Designs
M. G. Plain
Special Watermarks in M. G. Papers

The Paper Trade in the Sixty-Fourth Congress

Twenty Bills, Resolutions, Joint Resolutions, Etc., Dealing in One Way or Another with the Paper Industry Have Been Introduced in Both Houses—These Include the Investigations by Federal Trade, Proposal for Government Owned Paper Mill, Paper Embargoes and Other Interesting Measures.

Written for the Annual Number of the Paper Trade Journal by L. M. Lamm

It will no doubt be of special interest to readers of the PAPER TRADE JOURNAL, in view of the attitude taken by this, the Sixty-Fourth Congress toward the paper industry, to know that during the first and second sessions of this Congress there have been just twenty bills, resolutions, joint resolutions, etc., introduced in both Houses of Congress, dealing in one way or another with the paper industry.

Of this number thirteen were introduced during the first session from April 15 until September 17 and the remaining seven have been introduced at this present session between December 4 and December 22. Of the thirteen during the first session, ten were introduced in the House and three in the Senate and during this session two have been introduced in the Senate and five in the House.

These bills and resolutions, as given below, include investigations of the print and general paper industry by the Federal Trade Commission; by special Congressional investigative committees; and by the Department of Justice. They also call for the establishment of a Government-owned paper mill; of the laying on of embargoes on paper and paper-making material; for economy in the Government departments in paper and for the "protection" of newspaper publishers from "exorbitant" prices.

The bills introduced in their chronological order are as follows:

FIRST SESSION

H. Res. 202, introduced on April 15, 1916, by Representative L. C. Dyer of Missouri and referred to the Committee on Rules; stating in substance that the manufacturers have exorbitantly raised the price of paper for their own personal benefit and calling upon the Judiciary Committee of the House to investigate the "sudden and unprecedented" rise in the price of paper and to inquire as to whether or not any "conspiracy exists," or whether any law of the United States has been violated.

H. Res. 214, introduced on April 22, 1916, by Representative S. Ferris, of Oklahoma, and referred to the Committee on Rules. This resolution called for the appointment by the Speaker of the House of a select committee of nine members to inquire into the cause of the high price of pulp and print paper and whether or not it is caused by "monopoly, combination, etc." Also to investigate the methods employed by the various mills in fixing and controlling prices and to investigate the profits. The resolution gave the special committee authority to sit during recesses of Congress, to employ experts and to administer oaths to witnesses.

Federal Trade Commission Inquiry

S. Res. 177, introduced on April 24, 1916, by Senator Robert L. Owen, of Oklahoma, which was considered and agreed to and is the one under which the Trade Commission carried on its news print investigation as follows:

"Resolved, That the Trade Commission is hereby requested to inquire into the increase of the price of print paper during the last year and ascertain whether or not the newspapers of the United States are being subjected to unfair practices in the sale of print paper."

H. J. Res. 212, introduced on April 25, 1916, by Representative William W. Hastings, of Oklahoma, and referred to the Committee on Interstate and Foreign Commerce and reading as follows:

"That the Trade Commission is hereby requested to inquire into the increase of the price of print paper during the last year and ascertain whether or not the newspapers of the United States are being subjected to unfair practices in the sale of print paper."

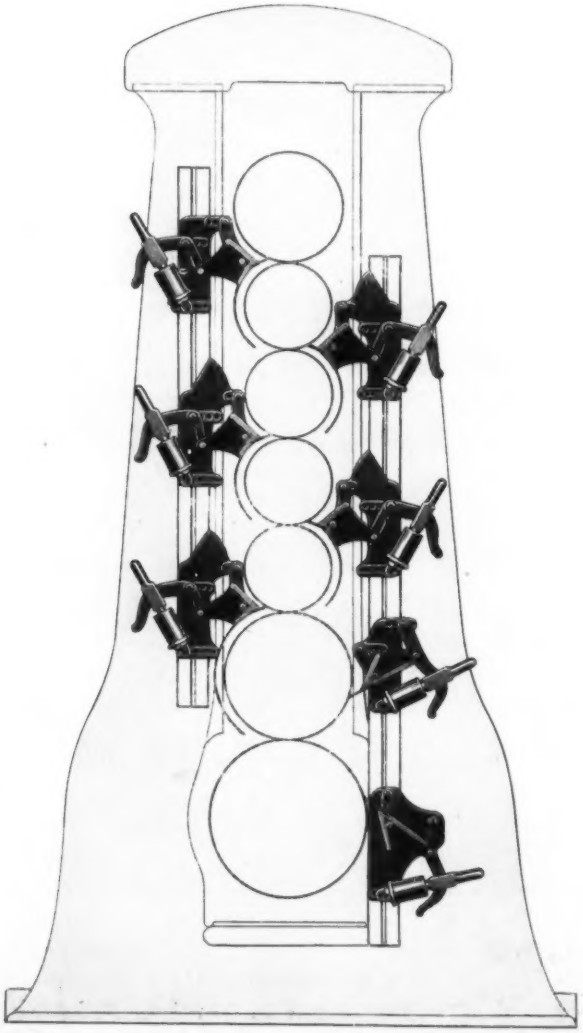
S. Res. 179, introduced on April 25, 1916, by Senator Thomas P. Gore, of Oklahoma, which was ordered to lie over under the rule and was never acted upon, as follows:

VIEW OF HA! HA! BAY SULPHITE COMPANY'S MILL IN PROCESS OF CONSTRUCTION.

DILLON MA

LAWRENCE,

PAPER MILL



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DOCTORS *and* FEEDS

CHINE CO.

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DILLON DOCTORS will cure all your Calender troubles. They are regular equipment in a great many of the Paper Mills in this Country and Canada, and large numbers of them have been furnished for machines in the mills of Europe.

The Dillon Doctors are hung up to the rolls by means of steel levers and links, and, owing to their construction, they are self-adjusting and will fo low the rolls in any position. THIS IS THE ONLY DOCTOR WHICH HAS THIS FEATURE. By means of springs, these Dillon Doctors can be set at any tension desired.

Our Doctors are also fitted with an automatic feed attachment which feeds the paper down through the calender rolls. These feeds will prevent the many accidents which are bound to occur when the paper has to be fed into the rolls by hand.

Descriptive circular furnished upon request.

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METANIL YELLOW
AZO ORANGE
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ACID RED
NIGROSINE
METHYLENE BLUE

Extracts

LOGWOOD
HEMATINE
QUERCITRON
CUTCH
FUSTIC
SUMAC
AURANTINE

Chemicals

SODA ASH
CAUSTIC SODA
CHLORIDE OF LIME
ZINC SULPHATE
MURIATIC ACID
BARIUM NITRATE
AMMONIUM NITRATE
ZINC CHLORIDE
SULPHURIC ACID
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Chicago, 130 North Fifth Ave.
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Cleveland, Rockefeller Building.

"That the Federal Trade Commission be and is hereby directed to investigate the recent rapid and unprecedented advance in the price of print paper, and to ascertain and report to the Senate the causes and forces which have brought about such advance of prices."

H. Con. Res. 41, introduced on May 31, 1916, by Representative Robert D. Heaton, of Pennsylvania, and referred to the Committee on Interstate and Foreign Commerce. This concurrent resolution, which set forth the shortage of raw materials for paper manufacture, called upon the people of the United States "to co-operate in the economical use of paper supplies of all kinds; that newspapers, large and small, and all industries of the United States co-operate in this work by practicing the same strict economy."

For an Embargo on Paper

H. R. 16852, introduced on July 7, 1916, by Representative Charles H. Dillon, of South Dakota, was referred to the Committee on Interstate and Foreign Commerce and was for "laying an embargo upon print, book, bond and linen paper, pulp and pulp products." The bill gave the President authority to raise the embargo when in his judgment the rice charged the consumer was "fair and reasonable." It also provided penalties for ships clearing the ports with this class of goods aboard.

H. Res. 304, introduced on July 12, 1916, by Representative A. S. Kreider, of Pennsylvania, and referred to the House Committee on Rules. The resolution pointed out that the price of all kinds of paper had advanced and that this increase hampered publishing of all kinds and, therefore,

"Resolved, That the Committee on the Judiciary be authorized and instructed to investigate this steady and unprecedented rise in the price of paper and to ascertain the reasons therefor, and whether any law of the United States has been violated by any one in connection therewith, and to report to the House of Representatives its findings and conclusions at an early date."

S. Res. 233, introduced on July 17, 1916, by Senator Boies Penrose, of Pennsylvania, and referred to the Committee on Interstate Commerce. This resolution called upon the Trade Commission to inform the Senate as to the progress made in its investigation of the newsprint industry as requested by the Senate under S. Res. 177.

H. Res. 310, introduced on July 18, 1916, by Representative James R. Mann, of Illinois, and referred to the Committee on Rules. This resolution also asked for the appointment of a committee of five members by the Speaker of the House "to inquire into the supply and production of pulp wood, wood pulp and print paper and other articles entering into the production of paper of any kind."

H. J. Res. 297, introduced on August 15, 1916, by Representative William W. Hastings, of Oklahoma, and referred to the Committee on Ways and Means, "authorizing and directing the President to place an embargo on print paper." The resolution points out that the price of print paper at that time "has more than doubled" and that "whereas it is believed that the increase in the price of print paper is due to contracts for the exportation of large quantities to European countries and not to increased cost of manufacture."

Government-Owned Paper Mill

H. R. 17699, introduced on August 31, 1916, by Representative Clyde H. Tavenner, of Illinois, and referred to the Committee on Printing, which has recently made a favorable report of the bill, "authorizing and directing the Public Printer to provide a pulp and paper mill or mills for the manufacture of print paper for the Government." This bill, as is well known to the trade, and printed in full in another number of the PAPER TRADE JOURNAL, provides a mill having a daily capacity of not less than fifty tons of paper, to be located with reference to the utilization of Government owned forests. It provides, further, that the product of the mill or mills shall be used by the Public Printer and any excess to be sold at cost to other branches of the Government service. The bill appropriated $1,000,000 for the work.

S. Res. 269, introduced on September 7, 1916, by Senator Duncan U. Fletcher, of Florida, and agreed to and under which the Federal Trade Commission will carry on its general paper investigation as follows:

"Resolved, That the Federal Trade Commission be and the same is hereby directed to investigate the increase in the prices of the various kinds of paper required for printing and binding during the last year, and to ascertain and report at as early a date as practicable, whether there has been any violations of the anti-trust acts by any corporation in connection with such advance in prices, with special reference to the prices demanded for paper necessary for the public printing and binding, and also whether or not the paper so used was manufactured in the United States or imported from the Dominion of Canada."

SECOND SESSION

H. J. Res. 309, introduced on December 4, 1916, by Representative A. J. Sabath, of Illinois, and referred to the Committee on Interstate and Foreign Commerce, "authorizing the Attorney-General to make an immediate investigation to determine the unreasonable advances in the prices of * * * and paper."

H. R. 18187, introduced on December 6, 1916, by Representative P. P. Campbell, of Kansas, and referred to the Committee on Interstate and Foreign Commerce "to conserve the supply of print paper of the United States and to protect publishers of newspapers from extortionate prices by temporarily prohibiting the export of news print paper." This bill aimed to prohibit the export of news print paper from the United States for a period covering two years and directed the President to issue the necessary instructions to officers for carrying out its provisions.

H. J. Res. 311, introduced on December 6, 1916, by Representative C. C. Dill, of Washington, and referred to the Committee on Interstate and Foreign Commerce, "authorizing the Attorney-General to make an immediate investigation to determine the cause or causes of the unreasonable advances in the prices of * * * paper, and report the facts as to differences between prices paid to producer and paid by consumer for the same."

S. R. 7240, introduced on December 11, 1916, by Senator Charles Curtis, of Kansas, and referred to the Committee on the Judiciary, "to prevent unfair discriminations in the sale of print paper by persons engaged in commerce and for other purposes." This bill made it unlawful for anyone engaged in commerce to discriminate in price between different purchasers of print paper, and provided for a penalty of $10,000 for violations.

To Prevent Unfair Discrimination

H. R. 18987, introduced on December 15, 1916, by Representative P. P. Campbell, of Kansas, and referred to the Committee on the Judiciary, "to prevent unfair discriminations in the sale of print paper by persons engaged in commerce and for other purposes." The bill was similar to S. R. 7240, previously recorded.

S. Res. 290, introduced on December 15, 1916, by Senator William S. Kenyon, of Iowa, and agreed to. The bill tells of the present stringency in paper and resolves: "That the Committee on Printing be and is hereby directed to investigate

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AND
COLUMBIAN
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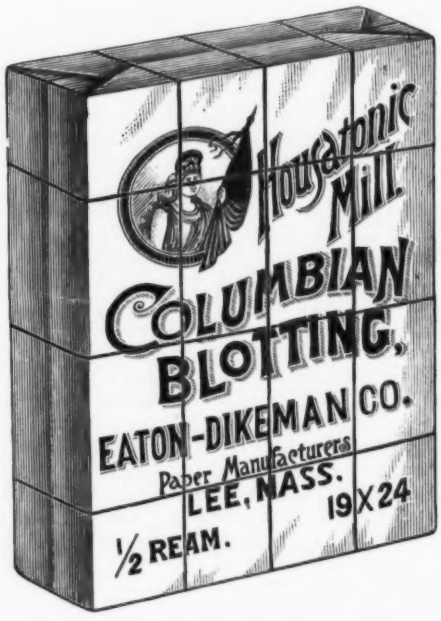

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and report to the Senate within thirty days as to what Government publications, if any, now being issued may be temporarily suspended, and as to what economies should be practiced by the Government in the use of print paper in the various departments."

H. Res. 421, introduced on December 22, 1916, by Representative W. W. Bailey, of Pennsylvania, and referred to the Committee on Rules. This resolution points out the acuteness of the print paper situation and that a "monopoly" is said to exist among the manufacturers, and that "serious charges" have been made by the American Publishers' Association, and that the publishers of the country are facing a crisis. It calls for the appointment of a select committee of five members of the House to be appointed by the Speaker, authorized to make an exhaustive study of the situation and report to Congress.

Of the foregoing bills only three passed, the one calling upon the Senate Committee on Printing to report Government economies in paper and the two calling upon the Federal Trade Commission to make its report on both news print and the general paper industry.

ST. MAURICE BUILDS PAPER, SULPHITE AND KRAFT MILL

Specially Written for the Annual Number of the Paper Trade Journal

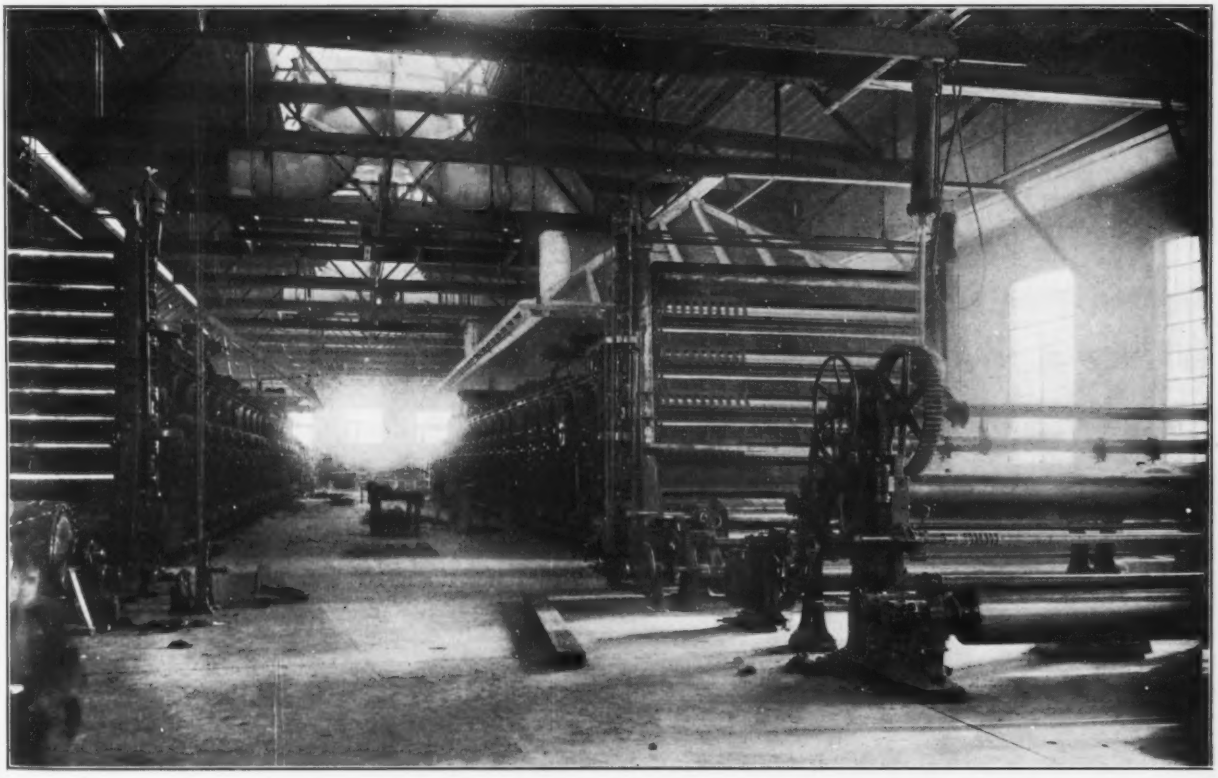
The St. Maurice Paper Company, Limited, of Canada, is a consolidation of the Gres Falls Company, the St. Gabriel Lumber Company, and the Charlemagne and Lac Ouareau Lumber Company, formerly subsidiary companies of the Union Bag & Paper Company. It has continued to operate the ground wood mill located on the north bank of the St. Lawrence River at Cap Madeleine, just across the St. Maurice River from Three Rivers. The output of this mill, over 100 tons per day, has heretofore been shipped to paper mills both in the United States and Canada. Most of this product will now be utilized in the new plant just being completed by the St. Maurice Company.

To Make News Print, Sulphite and Kraft Pulp

This new plant consists of a 100-ton news print mill, a 60-ton sulphite mill, and a 60-ton kraft pulp mill. The new plant covers an area of about 600 ft. x 800 ft. All of the buildings are brick, steel, and concrete construction, with steel sash, concrete roofs, and everything of the most modern description. The plant is so arranged that raw material, wood, coal, sulphur, lime, etc., can be brought either by barges in the St. Lawrence River in front of the mill, or by cars delivering into the various buildings.

Paper Mill Equipment

The paper mill is two stories high, 89 ft. x 289 ft.; is lined with grey brick. The roof is built of special hollow concrete beams to avoid condensation, and has a specially designed monitor for light. It is equipped with two Pusey & Jones high speed 166-in. paper machines, with 60-in. dryers, and all of the latest improvements.



VIEW IN MACHINE ROOM, ST. MAURICE PAPER COMPANY, CAP MADELINE, QUEBEC.

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HANS LAGERLÖF, PRES.

VIEW OF THE PLANT OF THE ST. MAURICE PAPER COMPANY, CAP MADELINE, QUEBEC.

The drive is from the basement, of the English cotton rope type, and all of the gears are Herringbone type. Each machine is driven with a Terry steam turbine direct connected to the main driving shaft through reducing gears. The exhaust steam will be used for drying, with practically no back pressure on the engines. Under the wet end of the machines are horizontal concrete chests for stock and white water.

The stock pumps, suction pumps, agitators, etc., are driven by separate constant speed line shafts driven by electric motors.

The machine room is equipped with warm air supply and exhaust fans for removing the vapor through specially designed fireproof hoods. Two large beaters are located in the basement to handle broke, and at times pulp in laps.

At the end of the paper machine room is the finishing room, 128 ft. x 157 ft., two stories high.

Railroad tracks run directly into this building under cover, so that the paper can be shipped from the storage room, there being extra loading tracks on the opposite side, which can be used, if necessary.

The screen room, 60 ft. x 152 ft., one story high, contains water filters, pumps, horizontal rotary screens for sulphite and sulphate, thickeners, and chests for sulphite and knotters, refiners, etc. Two vertical, conical bottom concrete mixing chests are located in this room, for combining the ground wood and sulphite which will be supplied to them in pulp form, and from these mixers the prepared mixture will be pumped to the chests and thence to the Jordans which will be located at the end of the paper machines close by the flat diaphragm screens.

Sulphite Mill Equipment

The sulphite mill has two 15 ft. x 50 ft. Manitowoc digesters with Jolbert linings, with the usual elevator, chip bin, and other apparatus. The acid is supplied to these digesters at the bottom by a direct electrically driven pump. This building contains also the cooling coils, tanks, etc. Directly connecting with the digester building and below the bottom of the digesters are large concrete blow-pits with a white water washing tank above same. The acid storage is carried in wooden tanks just outside of the digester building. The acid is made in a separate building, about 100 ft. x 55 ft., which contains the sulphur and lime storage, rotary sulphur burners, combustion chambers, coolers, and a complete outfit of the Barker acid making and reclaiming system. A separate portion of the building contains the lime mixing and storage tanks.

Equipment of Sulphate Mill

The sulphate mill proper is 46 ft. x 87 ft., and contains two welded steel digesters, 9 ft. x 42 ft., six steel diffusers, stock traps, water and liquor storage tanks. The recovery building, 120 ft. x 163 ft., separated from the digester building, contains three melting furnaces, revolving incinerators, disc evaporators in one portion, and in another a complete Swenson quadruple effect evaporator. The dissolving and causticizing tanks are also in an annex to this building close by the lime and salt cake storage.

The boiler house has six Babcock & Wilcox water tube boilers, each nominally of 500 H.P. and provided with superheaters, chain grate stokers, overhead storage bunkers, Green economizers, and induced draft fans. Terry boiler feed pumps are used for the water supply in connection with a large heater and receiving tank. The coal is conveyed from the outside coal storage, through a coal crusher, inclined and horizontal conveyors, delivering to the overhead bunkers.

The wood room is equipped with two Carthage chippers, horizontal shaking screens, Lombard crushers, and a complete outfit of conveyors leading to the sulphite mill chip bin and the sulphate mill chip bin. Changes have been made in the ground wood mill by installing a complete outfit of ground wood thickeners, chests, pumps, etc., so that the ground wood can be handled to the mixers in the screen room without going over the wet machines.

All Buildings Connected

All of the buildings are connected by enclosed overhead bridges about 6 ft. wide and 7 ft. high, some having conveyors installed in them and others being used for steam water and stock pipes.

The main water supply is taken through a heavy crib in deep water in the St. Lawrence River, feeding through a 36" wood stave pipe to the pump house on the bank of the river, from which it is pumped to the water screens in the screen room, and from there pumped to various parts of the plant.

Chinese Mill Has American Machinery

Plant Near Hankow, Which Has Been Recently Put Into Operation, Is Equipped In a Thoroughly Up-to-Date Manner—Mill Was Erected to Supply the Government With All Kinds of Official Paper —Smaller Mills Throughout Country Still Employ Crude Native Methods.

Written for the Annual Number of the Paper Trade Journal by L. M. Lamm

That China refuses to be "behind the times" is evidenced by the fact that in the government paper mill that has recently been put into operation in that country the machinery is all of the most up-to-date American manufacture.

Mill Built for Government

The government mill is located seven miles below Hankow and a half-mile from the mouth of Seven Mile Creek. This mill was erected to furnish the government with all kinds of official paper such as is used for bank notes, postage stamps, post cards, correspondence, etc. The architects of the mill were Americans.

The mill consists of several large, well-constructed buildings of brick, concrete, steel and wood. It was not quite completed at the outbreak of the revolution of 1911-12, when all work on it was stopped. During the revolution the buildings were occupied by soldiers and many of the brass and copper fittings were stolen at that time.

Equipped with American Machinery

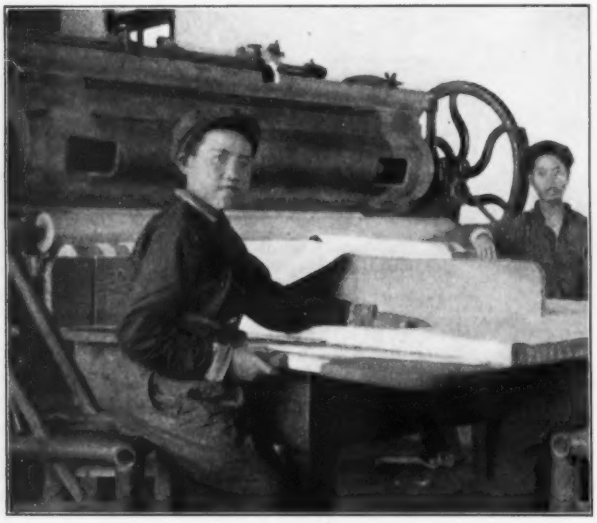
The mill is fully equipped with the very best machinery, supplied by American manufacturers. The bank-note paper machine in this mill has a capacity of 1,200 pounds per day and the large paper machine, on which all kinds of other paper are made, has a capacity of 24,000 pounds a day.

For the manufacture of paper in this Hankow district bamboo, straw and rags are available. Prior to the war rags cost the manufacturer $15 gold per ton of 2,240 pounds. A good quality of wood pulp has been imported at a cost of $69 gold per ton also before the war, although cheaper grades costing $40 and $33.25 have been used. There is no lumber available in the neighborhood of this mill for the manufacture of pulp, the greater part of the country being bare of forest growth.

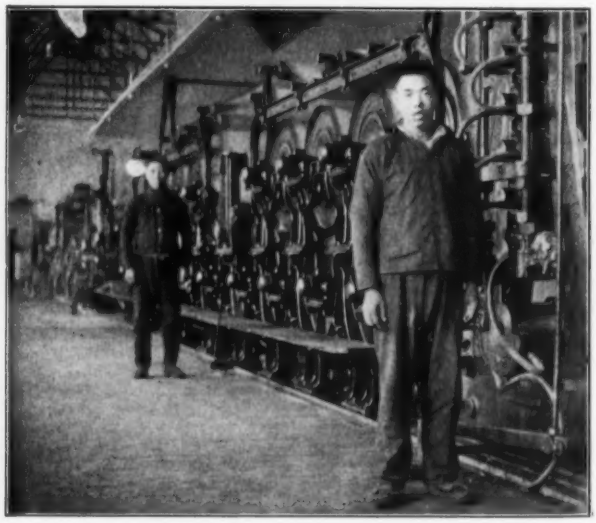
How the Natives Make Paper

In connection with Chinese paper making the readers of the PAPER TRADE JOURNAL will be interested to know something of the methods used by the smaller mills in that country. Paper is not manufactured in large factories using machinery, as in the United States, but is confined to small private factories in the valleys and gorges in the mountainous parts of the hinterland, far from the trade centers. One of the most important regions for the manufacture of paper is Tingchow. The method of manufacture is extremely crude, as will be noted from the following description:

Manufacturers of paper always own their own land, on which they grow bamboo as well as a species of mulberry tree, the bark of which is used in the manufacture of paper in connection with the slender root of a tree which grows in this region, principally north of Foo Chow in the prefecture of Yeng Ping. The roots vary in length from one to three feet and are very tough, with a brown skin. The manufacture of paper starts about the month of March, when the bamboo shoots are about six inches in length and before the leaves appear. The shoots are cut and split into four sections and are then placed between layers of lime in a pit built of limestone and sand. When this pit has been filled to about 80 per cent. of its capacity, a hole is cut in one side to allow water from a mountain stream to enter until the pit is full, thus forming a pond. The water is then shut off and the bamboo shoots are allowed to soak for about two weeks, when the water is once more let into the



PAPER CUTTING AND STACKING MACHINE



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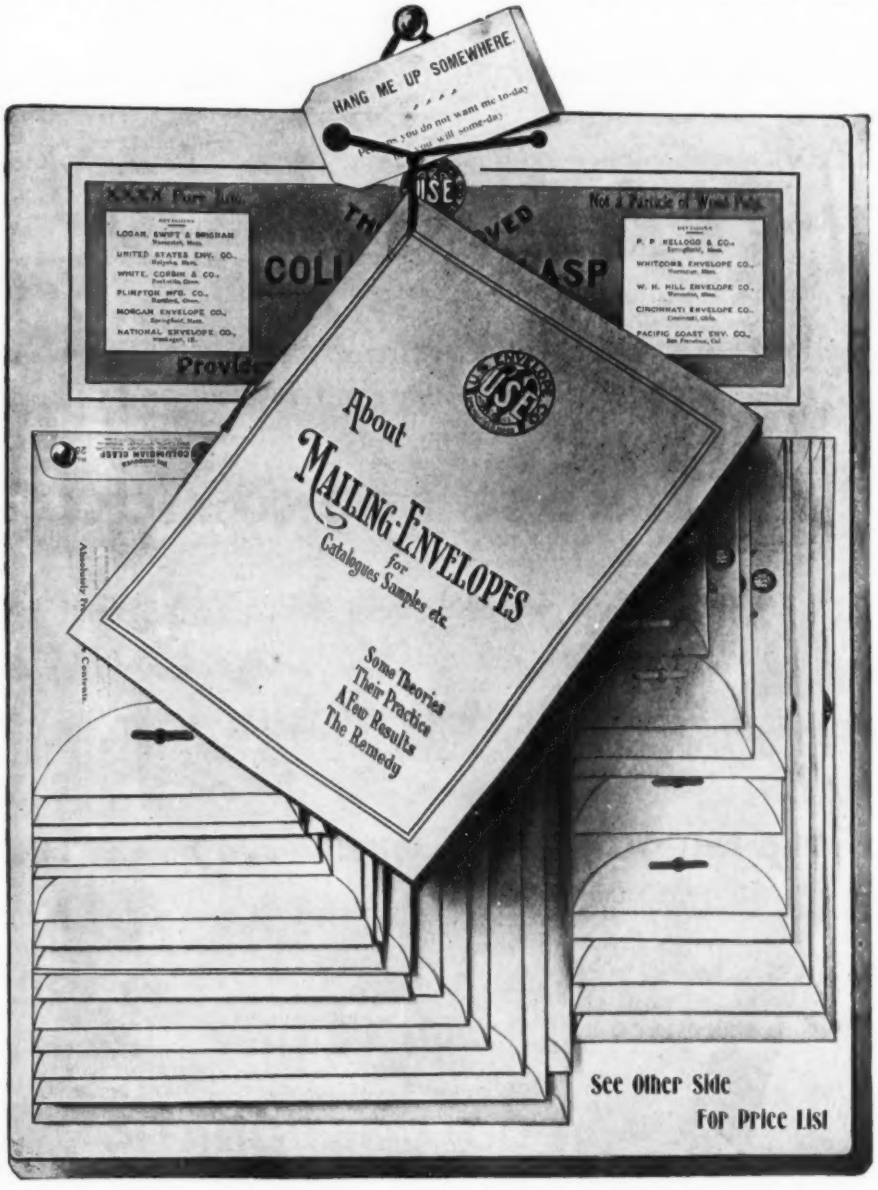

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5	Morgan Envelope Co.	Springfield, Mass.
6	National Envelope Co.	Waukegan, Ill.
7	Fine Stationery Dept.	Springfield, Mass.
8	P. P. Kellogg & Co.	Springfield, Mass.
9	Whitcomb Envelope Co.	Worcester, Mass.
10	W. H. Hill Envelope Co.	Worcester, Mass.
11	Cincinnati Envelope Co.	Cincinnati, Ohio
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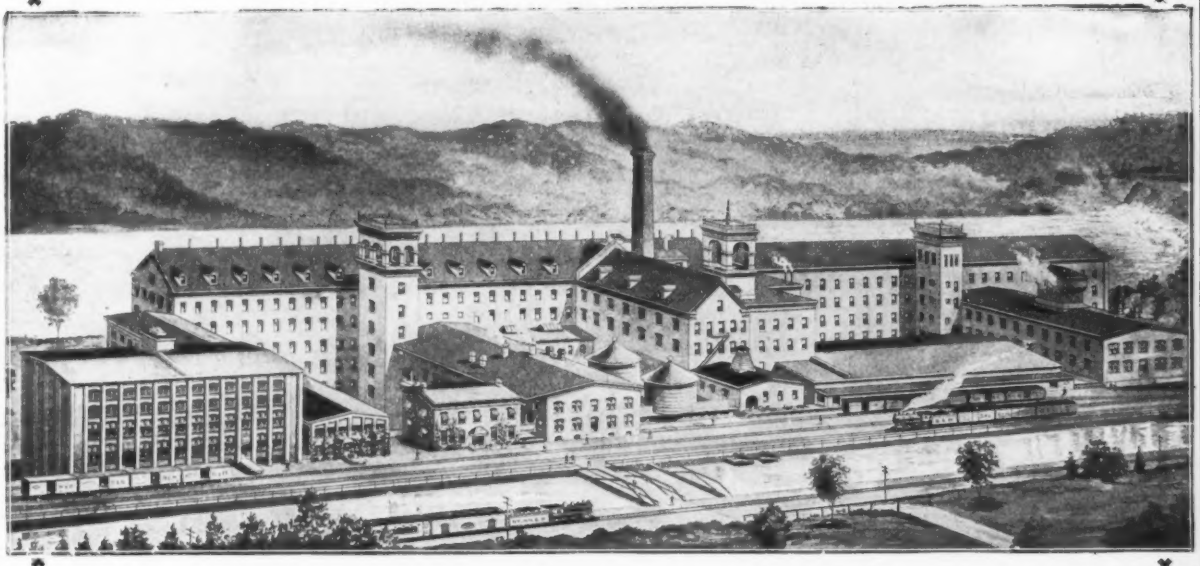

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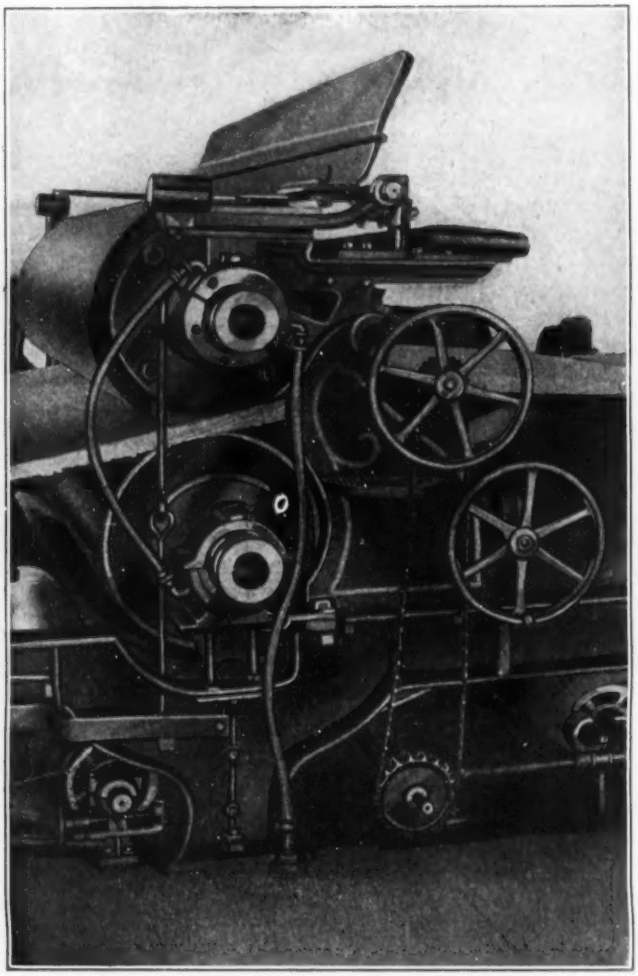

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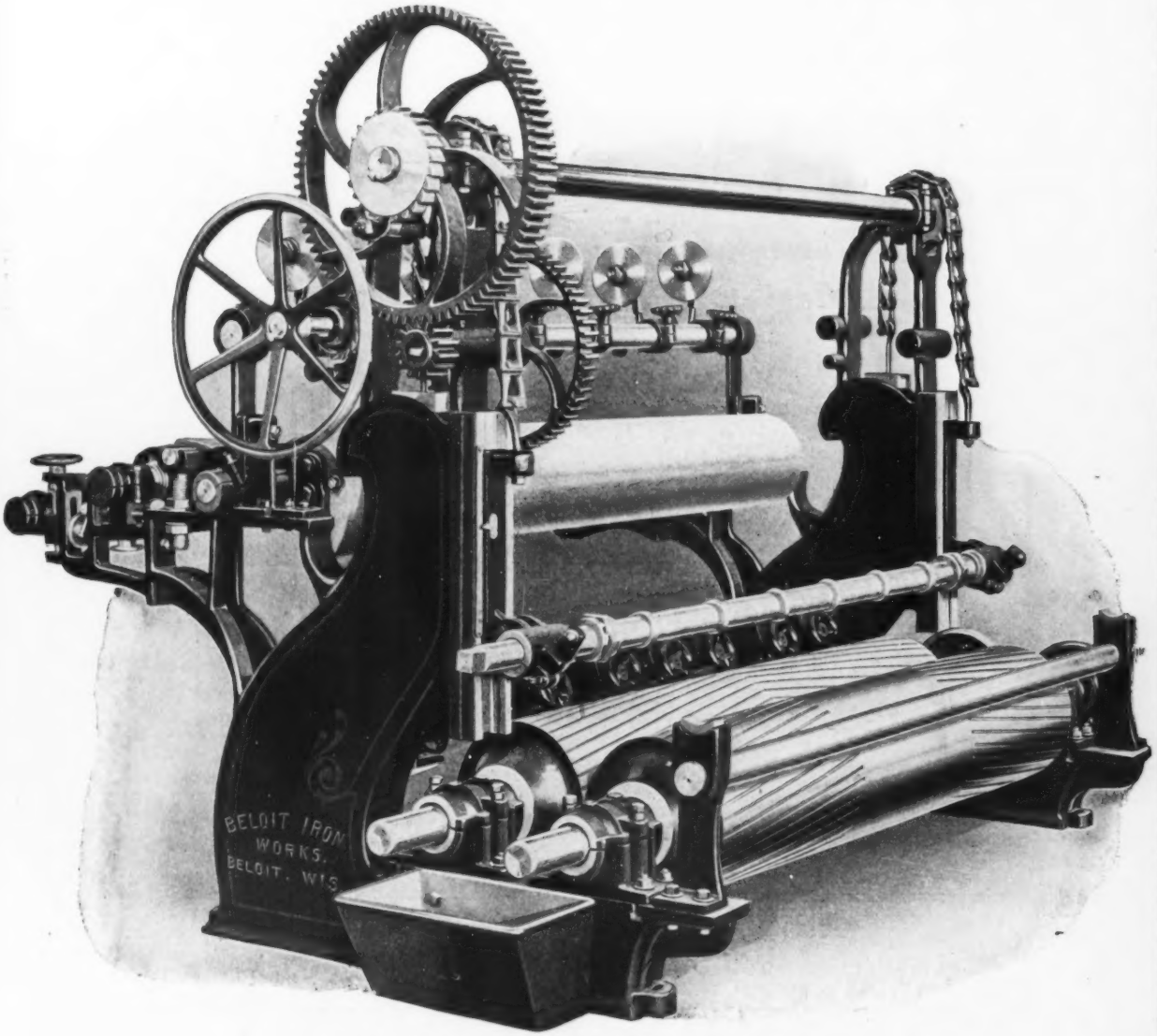

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pond, then by openings in the lower end the surplus water is drained off.

This draining process continues until June, when the lime has been entirely washed away and the bamboo shoots are soft. The latter are then removed and beaten to a pulp at small water mills driven by the mountain streams. The pulp is then squeezed by hand and spread on the branches of bracken (coarse fern) and allowed to remain exposed to all conditions of weather until August, when it is found to be thoroughly dry and bleached a pure white. After this the pulp is removed from the bracken and again pounded with the bark of the mulberry tree and the previously discharged roots and a little water. It is crushed very fine. It is then placed in clean water to dissolve evenly.

Making the Pulp Into Paper

The pulp is now ready to be manufactured into paper, and for the latter process a frame is used averaging 22 to 34 inches in length and 14 to 18 inches in width. Into this frame is fitted a mat consisting of thin and highly polished bamboo sticks running crosswise and bound together with silk cord. The broad end of the frame is dipped into the dissolved pulp, and by tipping the frame the pulp flows evenly over the surface. The frame is then turned upside down, the mat falls out, and an assistant strips the sheet of paper, thus formed, from the mat. These sheets are laid one on top of another until sufficient sheets have been made, when they are pressed and most of the water removed. The sheets are then separated and placed on the walls on a specially constructed narrow furnace, usually seven to ten feet in length and five and a half to eight feet in height, with both long walls exposed. After one wall has been covered with paper the assistant proceeds to cover the opposite wall, and by the time that is finished the paper on the first wall is sufficiently dry to be removed. The paper is then cut into the required sizes and packed for shipment to market.

These small paper mills are scattered throughout the mountainous region where labor is extremely cheap. As far as possible youngs boys are employed. Most of this paper is consumed locally, but the exports amount to about $500,000.

HEARINGS ON TOUR WORKERS' BILL

The Legislative Committee on Labor gave hearings at Boston, Mass., last week on two bills designed to limit the hours of labor of tour workers in paper mills, notwithstanding the fact that the special commission on social insurance has been making a study of the subject and has not yet reported. There were present

INSIDE VIEW CHINESE GOVERNMENT MILL.

WATER TOWER—CHINESE GOVERNMENT MILL.

to-day papermakers from Holyoke and labor representatives from the eastern part of the state, together with manufacturers.

Henry Sterling, for organized labor, said that bills of this sort have been adjudged unconstitutional in the past, but with the change in sentiment, which has come about in recent years, organized labor would like the privilege of again testing the law before the Supreme Court.

Louis F. Delaney, representing Eagle Lodge, of Holyoke, said his organization has 1,200 members, none of whom work more than eight hours a day, but they are interested in obtaining better conditions for their fellow workers in other parts of the state.

Senator Daniel J. Buckley, of Chicopee; William D. Clement, of Holyoke; Walter F. Russell, of Brockton, and Representative John Cronin, of Holyoke, also favored the bill, as did Matthias J. Nesdale, of Boston.

Chairman Cross expressed his surprise that not a single papermaker working on a two-tour system had come forward to advocate the legislation, and inquired if any such workers were in the room, receiving no response.

George R. Wallace, representing the Fitchburg Paper Company, was the first speaker in opposition. He said his company has operated under the three-tour system for ten years, and the officials can conceive of no conditions which would cause them to return to the old order of things, but if the situation should sometime arise when it becomes necessary either to return to the two-tour system or shut down, he believed the interests of both manufacturers and workers would be served by such a return.

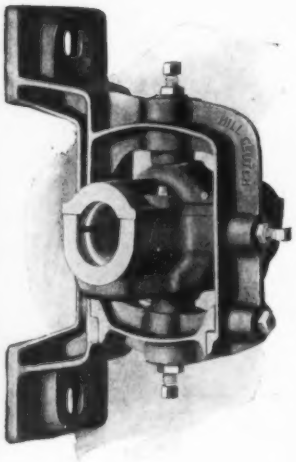
His chief objection to the bills, he said, is that under their provisions the employer would be penalized if he permitted a papermaker to work more than eight hours in one day. Frequently, he said, the workers, by mutual arrangement, work each other's hours, in order to obtain time off.

A. Hollingsworth, president of the Tileston and Hollingsworth Company, said that when its competitors outside of Massachusetts went on the three-tour system last Spring, his company immediately followed suit and prefers to remain on that system, but if its competitors go back and legislation is passed which will prohibit the company doing likewise, its only alternative will be to shut down.

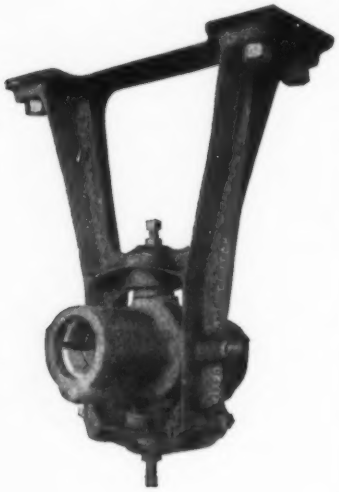
STAMPED ENVELOPE PRICES HIGHER

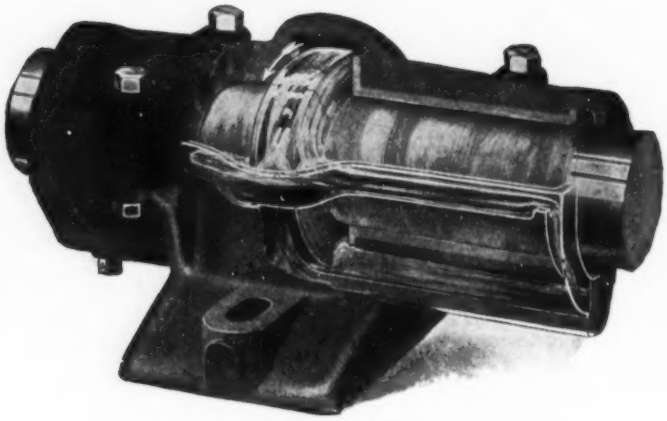
Increase in the price for all sizes of stamped envelopes, effective February 1, has been announced by the Post Office Department. The raise was made necessary by the increased cost of paper and the use of more and better material. The increases average forty-three cents a thousand envelopes.

THE HILL CLUTCH CO.



HILL COLLAR OILING BEARINGS

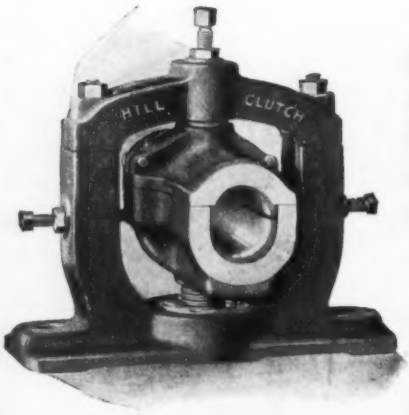




SECTIONAL VIEW

HILL COLLAR OILING BEARING

CLEVELAND TYPE



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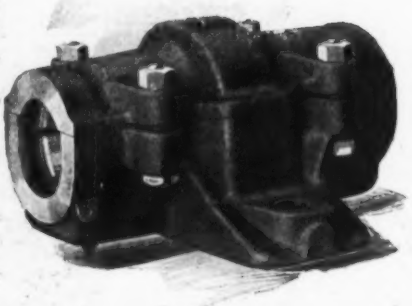

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TECHNICAL SECTION MEETS

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One of the most interesting features of the whole convention was the work of the Technical Section. Three meetings of the entire Association were held, in which the greatest interest was shown by the members. The first of the general meetings, held on Wednesday morning at 10 o'clock in the Banquet Hall, was devoted mostly to routine business, and the reports of the various standing committees. The meetings of Wednesday afternoon and Thursday morning, both held in the Astor Gallery, were taken up with the reading of papers on various technical subjects. Altogether there were eleven of these, accompanied by stereopticon slides, and each of them presented by an expert in the topic under discussion. At the final meeting the election of new officers took place.

The first general meeting was preceded by a business meeting of the Executive Committee and the chairmen of standing committees, which began Tuesday morning and continued in the afternoon. The session of Wednesday morning, which was presided over by Henry E. Fletcher, president of the Association, opened with an address of welcome by President A. B. Daniels of the American Paper and Pulp Association.

The Report of the Executive Committee

The report of the Executive Committee was then submitted by Vice-President W. G. MacNaughton, and the secretary-treasurer's report by Thomas J. Keenan. The appointment of the auditing and other committees followed, and the reports of the standing committees of the Association were then received. The committees and chairmen are as follows:

Abstracts Committee, J. N. Stephenson, chairman; Bibliography Committee, Henry E. Surface, chairman; Dyestuffs Adulteration Committee, Otto Schutz, chairman; Groundwood Committee, George C. McNaughton, chairman; Paper Testing Committee, H. P. Carruth, chairman; Prize Competition Committee, Martin L. Griffin, chairman; Publication and Program Committee, Thomas J. Keenan, chairman; Soda Pulp Committee, Martin L. Griffin, chairman; Standard Methods for Testing Materials, Max Cline, chairman; Sulphate Pulp Committee, Otto Kress, chairman; Sulphite Pulp Committee, Robert B. Wolf, chairman; Vocational Education Committee, Ernest Mahler, chairman; Councillors of the American Paper and Pulp Association, Henry E. Fletcher, chairman.

The Wednesday Afternoon Session

At the Wednesday afternoon meeting the following illustrated papers were presented:

Management of the Beater Room. By A. B. Green of S. D. Warren & Co., Cumberland Mills, Me.

Production of Methyl Alcohol from the Spent Liquors of the Soda Pulp Process. By Profs. Alfred H. White and John D. Rue, University of Michigan.

The Bleaching of Groundwood Pulp. By Otto Schutz of the Badische Company, New York.

Some Observations on the Influence of Humidity on the Physical Constants of Paper. By Otto Kress and Philip Silverstein, of the Forest Products Laboratory, Madison, Wis.

Effect of Forced Circulation on Sulphite Cooking. By Sidney D. Lunak of the Forest Products Laboratory, Madison, Wis.

The Conclusion of the Meeting

At the final session of the Technical Association, held on Thursday morning, the technical program was concluded by the reading of the papers listed below:

Cotton Rope for Power Transmission. By J. Melville Alison of William Kenyon & Sons, Ltd., Manchester, Eng.

Electric Motor Application to Pulp and Paper Machinery. By W. W. Cronkhite of the General Electric Company, Schenectady, N. Y.

Further Studies on a Numerical Expression for Color as Given by the Ives Tint Photometer. By Otto Kress and G. C. McNaughton of the Forest Products Laboratory, Madison, Wis.

A Method of Analyzing Sulphur Gases. By Robert B. Wolf of the Spanish River Pulp and Paper Mills, Ltd., Sault Ste. Marie, Ont., Canada.

Baled Pulpwood Chips. By Rolf Thelen of the Forest Products Laboratory, Madison, Wis.

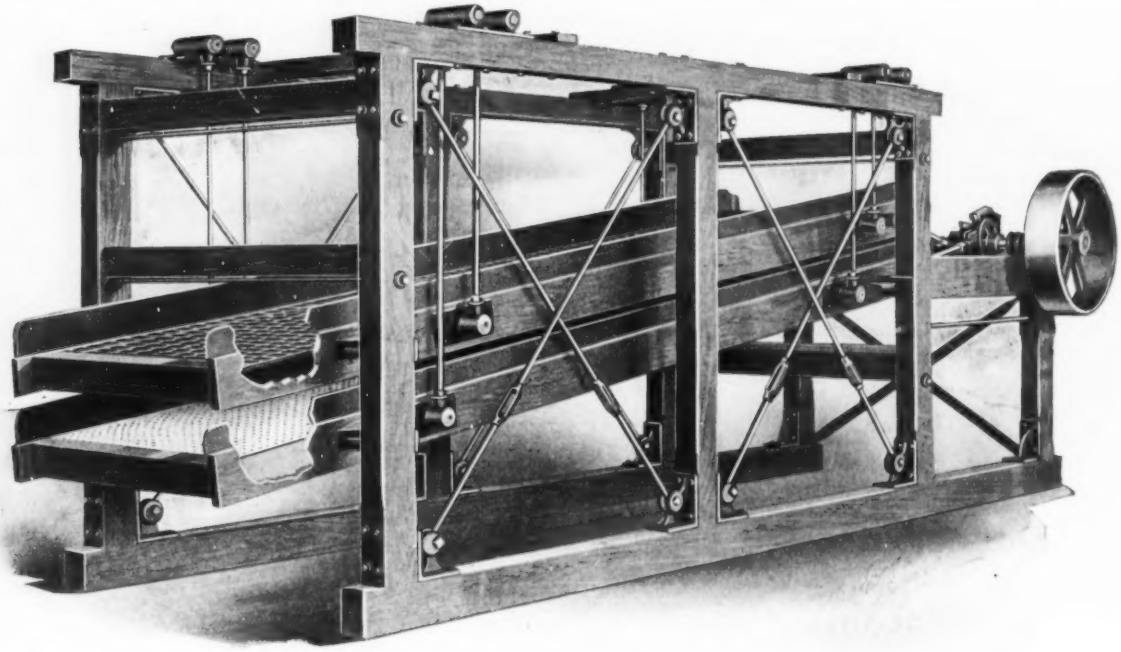
Forestry Work of Ranger School Students in the Adirondacks. By Dr. Hugh P. Baker, dean of the New York State College of Forestry at Syracuse University.

LARGE PAPER MILL FOR NORTHWEST

The largest single timber deal ever made in the Pacific Northwest is assured with the closing of options on 100,000 acres of spruce and fir land on the lower Umpqua and Smith rivers, in the Coos Bay district of Oregon. The deal when completed will involve a total cash payment of between $3,000,000 and $5,000,000 by a New York and Boston paper manufacturing company. Cruisers have been placed on the property and it is estimated the land contains upward of 3,500,000,000 board feet of timber.

The owners of the property are the Gardiner Mill Company, 35,000 acres; C. A. Smith Lumber and Manufacturing Company, 27,000 acres; Sparrow and Krall, Spokane, 14,000 acres; J. O. Elrod, 8,000 acres; Reed and Mackay, 1,000 acres, and other small tracts.

The Eastern capitalists are expected to begin development of the property at once with the erection of a large pulp and paper mill. The timber is within easy reach by rail and water.



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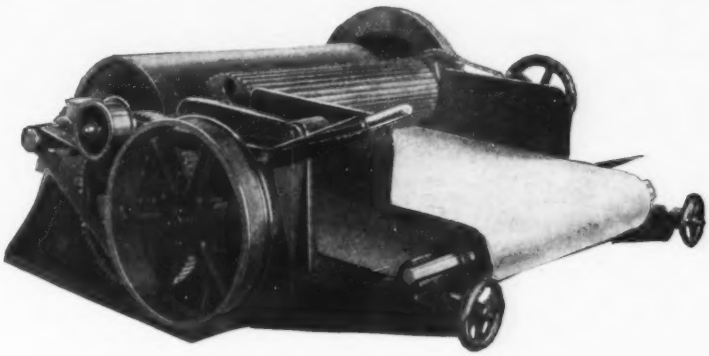

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WESTFIELD RIVER PAPER COMPANY, Russell, Mass.
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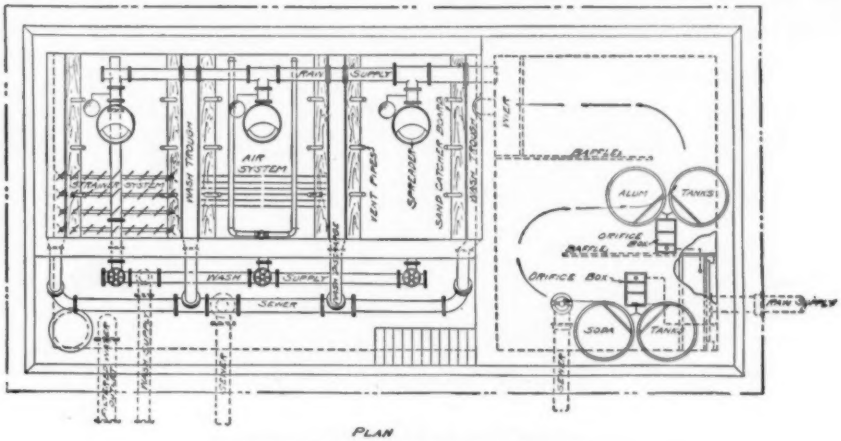

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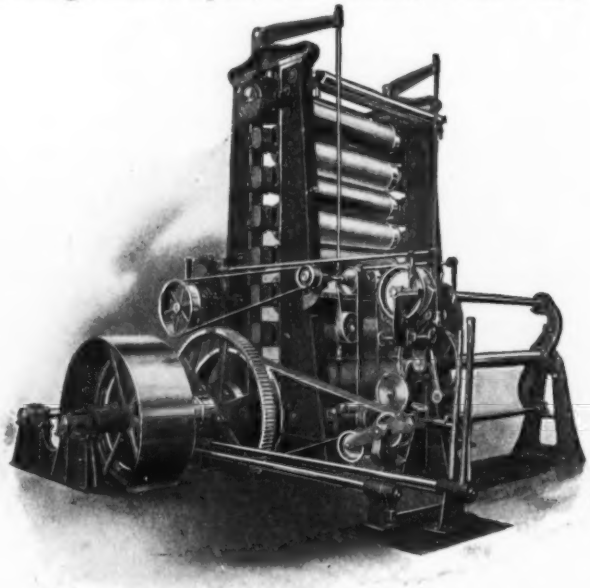

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Management of the Beater Room

A Paper Which Views the Technological as Well as the Humane Side of the Situation—A Discussion of the Two Phases of the Problem as Carried Out at the Mills of S. D. Warren & Co., Cumberland Mills, Maine—How the Management Can Give the Beater Man and His Helpers Definite Duties to Perform for Greater Uniformity in Treatment of Stock.

Paper Read at Technical Section Meeting by A. B. Green

Owing to the far-sightedness which prompted Joseph A. Warren, Manager at Cumberland Mills, to initiate in 1911 the long course of experiments which was involved, there has been developed at these works the first plan in the writer's knowledge whereby the process of beating may be subjected to precise control. The problem involves research into the technology of the operation, to obtain an orderly knowledge of the art, and then the slow patient trial in practice, argument, inducement, and readjustment of the organization, to obtain whole-hearted team play in applying knowledge of beating gained in this somewhat new way and expressed in new terms. In other words, there is a technical and a human side to it. It is a problem in scientific management. These notes are intended as a discussion of these two phases of the problem, the technical and the human, with perhaps more emphasis on the second than on the first, because that seems to us far more difficult and important.

Giving Beater Man Definite Duties

So far, then, as research into the operation itself is concerned, we set out to develop means whereby the management can give to the beater man and his helpers definite duties to perform, which can be understood and measured by a competent person not himself doing the work, the result of which will be greater uniformity in the treatment of the stock. This may be taken as a formal statement of the problem in its non-personal or technical phase, and so as the starting point of the discussion.

Beating is an art, the more refined for the higher grades of paper. As an art, beating is like the art of sailing a yacht or playing the game of tennis; it deals with a large variety of unstable elements, some of which have been surmised, but few have been accurately defined. Therefore success is a matter of practice. It is also, like sailing or playing tennis, a matter of natural adaptability; that is, not every one who tries can become a first class beater man. In short, the practical blending of this large number of unknown variable elements that go to make up the action of beating requires intuitive plus experienced skill.

The easiest technical approach to a study of the action of the beater is to treat the body of stock and water that is undergoing this action as a mass, with certain variable properties which are influenced by the duration and severity of the action. Were we to take the other course and enter upon an inquiry into the microscopic physically changes and the complex chemical re-combinations that take place in the fibre itself, influenced, too, as these things are, by the characteristics of the residual chemicals and those added, to say nothing of the water, then we should be plunged into depths of study into which much laborious speculation has already gone without result, and our chances of emerging with anything practical in a reasonable time would be exceedingly small. It is doubtful if any profit-making concern could afford the expense of such a course of study.

It should be noted also that our object is not to discover the ideal method of beating so as to design the apparatus on new theoretical lines, but it is simply to take the operation and the equipment as they stand and to control the action that takes place. The simpler course of study is to be preferred

The problem concerns the open tub beater of the Hollander type with single roll and bed-plate, the roll driven at constant speed. The stock is chemical wood and rag, and the paper to be made is high class book.

Accordingly the beginning was made by taking the simpler physical observations upon the mixture of stock and water in the beater, considered as a mass.

Assuming, then, that the beater has been furnished, and the roll has been set down to working position, certain changes begin to take place in the stock, the more obvious and simple of which might turn out to be the more valuable for the purposes of measurement and control.

(1) The Surface Slope

The stock leaving the backfall is at the highest elevation, and there is a decline from that point to the point where it is first struck by the fly-bars of the roll. At the turns about the two ends of the midfeather the surface is not flat but warped, so that there are only two sections of the course over which the stock travels where it is possible to measure fairly the surface slope—from end to end of the midfeather on the openside, and from end of midfeather to curb covering the roll on the roll side. Casual observation discloses that as the stock circulates and the beating proceeds, the surface slope diminishes, that is, the differences in elevation of the surface just noted become less.

(2) The Texture or Appearance of the Mass

When the beater has just been furnished, that is, the proportion of dry stock to water has been fixed, the mass breaks into large blocks or bergs, as it is crowded around the ends of the midfeather. These bergs are separated by wide and deep fissures, in which sometimes the whole hand may be concealed. As the beating proceeds these bodies become smaller, the separating fissures less, until the surface at last presents a rather homogeneous or solid texture, approaching smoothness.

(3) Speed

At the beginning, when the surface slope is greatest and the texture coarsest, the stock travels slowly. From the standpoint of capacity in pounds of stock, that is a critical point, for the addition of a very little too much will stop the circulation altogether. As the beating proceeds the speed of travel increases, and if no additions of stock are made meanwhile, this speed reaches its maximum at the end of the operation.

(4) The Working of the Stock on Itself

When the beating begins and the texture is coarsest and speed slowest, the mass will be seen to move much as a solid column, the speed near the sides being about equal to that in the center, the stock changing its course at the turns with great difficulty, as evidenced by it breaking into the large bergs already noted. The mass tends to retain its form in travel as ranks of soldiers are maintained straight across the line of parade. Later, after some beating, the stock is seen to lag at the sides, to squirm around the turns and to lose all semblance of rigid formation.

This same characteristic is seen in the vertical section of the

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stream by inserting a stick so that its lower end is near the bottom of the beater and its upper end projects some inches above the surface of the stuff. At the beginning, when the mass is stiff and turns slowly, the stick will travel substantially in one position, or parallel with itself. Later, however, the stick will, as it approaches the roll, tilt more and more towards the roll, showing that the difference in speed of travel between the bottom of the mass and the top has increased since the beating began.

(5) The "Feel," a Matter Not Easily Described

There is a change in the impression one gets by feeling of the stock with the hand, a change too vague and complex to set down in words. The beater man can by experience become familiar with it, and for him it assumes definite meaning. He falls into ways of describing it which are much more picturesque than scientific, and he is able through the exercise of close attention to judge pretty well the fitness of the stock for the purpose.

(6) What May Be Called "Flow"

If, when the stock is turning in the beater, the arm is plunged into it up to the shoulder, and the attempt is made to hold them rigid, this will require a large force. By repeating the experiment at intervals throughout the beating of a furnish of stock, the observer finds that this force diminishes greatly. The second, third, fourth and fifth variables already noted are discernible by feeling with the arm at the same time, but the striking fact is the wide change in the simple force necessary to hold the arm rigid against the flow of the stock.

There are of course other changes in the stock, which are not so readily discerned while the beating is in progress, changes which have to do, for example, with the strength, hardness, shrinkage, sizing effect, and ability to be well "put together" on the Fourdinier wire. These are subject to determination by treating and testing samples in the laboratory, or by running into paper according to fixed procedure under standard conditions. They would not serve as guides to the beater man. They give no promise of continuous or even of frequent and rapid determination while the beater man is still in the midst of his task. We are, therefore, left to such a set of preliminary observations as have been enumerated. Certainly if all the variables which can be easily studied are subjected to analysis, the chances are good that the easiest way may be found to gain control of the whole, for it is likely that there is some combination of even these elements mastery of which would result in virtual control of the rest. Systematic work was accordingly begun in February, 1912.

Only Three of the Varieties Measurable

Of the six variables already described, only three are measurable by any ordinary or ready means, the first, third and last. In other words, although all six are very apparent to the observer, the task of applying any kind of scale to them, and expressing them in precise units, would be extremely difficult except for the first, third and sixth. These six variables are also inter-related. Changes in any one of them may affect all the others, and are sure to affect some of them. For example, if an addition of water is made while beating is in progress, the surface slope (1) is decreased, the speed (3) is increased, the working of the stock on itself (4) is increased, and the force of the flow (6) is diminished. The texture (2) and the feel (5) are also modified, but in ways not so easily expressed.

Once the beater has been furnished, and the beating action begun, of course we have continual change in all six of these variables. There are only two things, however, that can alter the rate of change, that is, only two things that can modify the curves along which these variables may be thought of as advancing. One is the addition or deduction of water or other material; the other is the lowering or raising of the beater roll. If it be assumed that the center of the beater rolls spindle is maintained at exactly the same vertical distance above the base of the bed-plate, it must naturally be supposed that the effect would be different upon a thin furnish of stock than upon a thick one. It is hardly conceivable that it would be otherwise, and practical experience has led to this assumption being almost universal. On the other hand, if the density of the furnish can be made uniform time after time, then the setting of the beater roll will have direct and comparable effects upon these six variables, and these effects are what we are studying. Some easy method must be found, therefore, of controlling desnity.

Controlling Density

The same conclusion was forced home by our own work. We referred the surface slope (1) to a fixed level line. We measured the speed of turning (3) by inserting a short stick in the stuff at a point where the path or motion is straight and timing the travel of this stick over a measured course with a stop-watch. We measured the force of the flow (6) by inserting a bar of steel into the stock, edgewise to the direction of flow, supported on a shaft reaching across the beater, so that the bar was free to turn about the shaft as a pivot. On the outboard end of the shaft a lever was attached, which was connected to a spring-balance. We had also a device for registering the change in the adjustment of the beater roll with reference to the bed-plate; but, owing to the fact that it was then crude and depended on the curb over the roll being rigidly connected down to the bed-plate chair, the measurements made did not contribute much to the experiments at this time.

The steel bar is referred to as the "drag," and in the runs charted it has attached to its lower end an ellipsoidal shape turned from wood. These two runs were made in the same beater, with the same furnish, for the same quality of sheet, on the same day. No precautions were taken beyond the every-day judgment of the beater second hand to obtain the same density in Run No. 77 as had been obtained in Run No. 75. The beater man, too, was acting according to his unaided judgment in handling the roll throughout the runs. The drag curve is higher and the speed is lower for Run No. 75, the density of which was 7.4 per cent. solid, than for Run No. 77, the density of which was 6.6 per cent. solid. The change in speed and in pull on the drag was greater in the less dense furnish.

Again, were this discrepancy in the thickness of the furnish not compensated later on by the addition of water to the mixture, it would upon reaching the paper machine cause a variation of something like 0.8/6.6x100, or 12 per cent. in the ream weight of the sheet. Ordinarily, therefore, our only protection against this error, too, is judgment. Uniformity of ream weight, as well as uniformity of quality, as determined by the beating given, would both be enhanced if we control density of the furnish.

Seriousness of Density Factor

The question then arises, how serious is this density factor; that is, if the hands are left to use their ordinary judgment, without special attention being called to the matter, how near to the same density will they commonly get their furnishes? The following table is significant, because the determinations were made early in our work, before the workmen were fully aware what we were trying to do:

Date.	Beater.	Grade.	Density (Per Cent. Solid).
4-11-12	5-3	C	9.9
4-12-12	5-2	C	6.9
4-12-12	5-1	C	7.9
4-13-12	5-3	C	7.0
4-15-12	5-1	C	7.8
4-15-12	5-1	C	7.6
4-16-12	5-3	C	8.0

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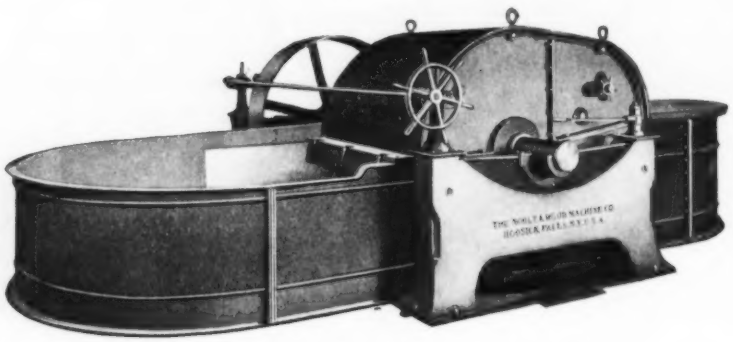

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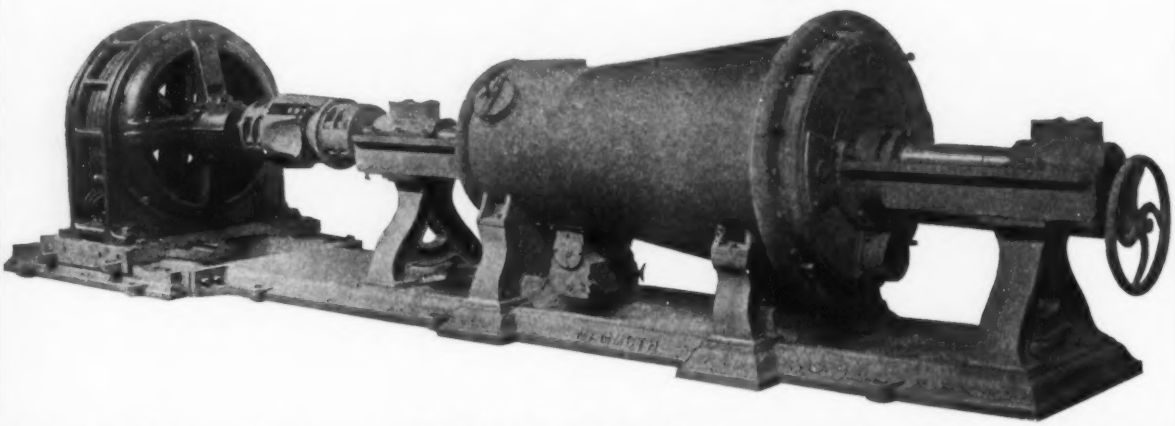

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4-17-12	5-3	C	7.8
4-17-12	5-2	C	7.6
4-18-12	5-1	C	7.9
4-24-12	5-3	C	7.6

Except for one extremely thick furnish, the variation here is 14 per cent. to 15 per cent. All told, the extreme variation is 43.5 per cent. Such extreme is not likely to occur often, but it always threatens.

Other Important Matters

Besides this important problem of density, there are two other matters necessary to the general problem. First, the means of measurement for at least the three variables of the six which can be readily measured must be worked up to a sufficiently high degree of accuracy and sensitiveness. Secondly, ways must be devised whereby we may judge our results. Immediately the stock leaves the beater it is mixed with water in dumping and pumping; it is mixed with more water at the refining engine, and more again at the paper machine. The action of agitation, pumping, refining and so on, add unknown variables to the condition of the stock.

A good deal of change can be wrought in the finished sheet by the way in which the stock is run on the wire, sucked, pressed, dried and calendered. In order to know what our results have been at the end of the beater, we must be able to judge our stock at that point, free from all the things which may happen to it subsequently.

Measuring Variables

First, in refining our means of measurement of the variables under consideration, we got a quick and practical expression of the changes in the surface slope by inserting a vertical scale of inches at the mid-point of the curve of the tub at the front end of the beater. The amount of water and stock contained in the tub remaining the same, a decrease in the surface slope would be shown proportionally by a rise of the surface of the stock upon this scale.

Studying Force of Flow

As to the force of the flow, considerable time was spent to discover what form of obstacle attached to the drag bar would give, from first to last of the run in the beater, the greatest range of variation in the readings of the spring balance. The drag bar was placed at various points across the width of the tub, and extended to various depths below the surface of the stock. Many different shapes were attached, one after another, and a series of tests were made on each. A wide shape, extending across the tub, or a multiplicity of drag bars at intervals across the tub, all acting in unison, might be supposed to render an expression of the average force exerted by the stream, and this point was tested to determine whether the average force or the force at substantially one point in the stream was subject to the widest range of variation from first to last of the run. The best shape was selected from these trials.

Although the design of this shape is not easily susceptible to mathematical treatment, owing to the state of flux in which all of the surrounding conditions are, nevertheless, there is a simple mathematical theory upon which that design should be based. The stock in flowing exerts a force against the drag bar and the obstacle attached to it. That force can be resolved into two component forces, both, however, acting in the same straight line and in the same direction.

In brief, by opposing an obstacle to the flow of the stock and considering the force exerted, we are treating the mass of stock as a fluid. The internal and skin friction in a fluid go together to make up what is known as "viscosity." Accordingly, our obstacle to the flow, together with means of measuring the total force set up, is simply a form of viscosimeter.

Now, by altering the form of this obstacle, either the skin friction or the internal friction of the fluid mal be accentuated over the other. If the obstacle take the form of a plane set parallel with the direction of flow, then the internal friction would become zero, and the total force set up would arise from skin friction. Set the plane perpendicular to the direction of flow, and oncceivably the skin friction would become zero, and the total force set up would arise form the internal friction of the mass.*

A long series of careful observations on different shapes between these two extremes led to the conclusion that for chemical wood stock the best shape would be that which would accentuate internal friction and minimize skin friction. Internal friction, therefore, is the element of viscosity which changes most for this class of stock during the action of beating. For a character of stock in which this conclusion would not hold, the shape of obstacles which should be chosen would be changed accordingly to afford the greatest change of reading during the run, the greatest sensitiveness, that is, in the instrument.

Shape Finally Adopted

The shape finally adopted was designed so as to cause a uniform positive and negative acceleration laterally of a particle, which remains near the surface of the obstacle and travels forward at a uniform rate. In this way the acceleration factor as a component element of the total drag pull was sought to be eliminated. Tests pretty well confirmed this theory.

The principle of the drag is patented. A square shaft spans the beater, and carries a cast iron spider. This is provided with carefully aligned and ground bearings for the support of the drag bar and bulb, which are free to turn in these bearings. The bar is hung in two sleeves, the lower one of which is provided with the journals which rest in these bearings. Attached to this sleeve by a link is a long bell-crank terminating in an arrow, which works against the scale shown at the right. A yoke attached to the upper sleeve anchors the drag rod back to the stationary spider through a spiral compression spring contained in the cylindrical spring case shown. The spring is calibrated approximately to specification when made, and the calibration is completed in practice by means of the lock-nut adjustments on the spring case. By means of these the spring may be tightened or loosened or mounted at a greater or less distance from the drag rod bearings. The system is so adjusted that the spring, the piston against which it thrusts inside the case, and the piston rod, all float free of any rubbing against the spring case. All bearings throughout are carefully aligned and ground. The movement of parts must be free enough so that in action the arrow will tremble with the slight unevennesses in the stock as they pass the drag bulb, and when the arrow is raised and released, then depressed and released, it must return to well within ten points on the scale of its initial position. In short, the apparatus is an instrument of great delicacy of action, although its supporting parts must be made heavy to withstand the rough service of the beater room.

In addition an automatic recording attachment has been provided, producing a continuous strip record of the positions taken by the arrow with reference to the scale.

Further Refinement in Equipment

A further refinement was also made in our equipment for measuring the vertical adjustments of the beater roll with reference to the bed-plate. A plunger is rested vertically on the journal of the roll spindle, and connected without lost motion to a horizontal lever very close to its pivot-point or fulcrum. This fulcrum is supported rigidly to the chair of the bed-plate by means of stanchions of special steel in which the expansion due to rising

*Practically this would not be strictly true of paper stock, because a mass of fibre would become compressed against the upstream side of the plane and form a new obstacle of definite volume and substantially fixed surfaces. An excessive difference of head, too, upstream and downstream of the plane would produce a new component, static pressure.

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temperature is minimized. The long arm of the horizontal lever carries a recording point which traces out a mark on a record strip. The strip is driven through reducing gears by the roll spindle itself, so that with constant speed of roll, which, as already specified, is a fundamental condition to these experiments, all curves made would have an accurate time scale. This instrument was designed and built with great accuracy. It multiplies the vertical adjustments of the roll 30 times.

So much for the refining of our means of measurement. But we had also to develop ways of judging the results of our work independently of what might happen to the stock at the refining engine or on the paper machine. Some notes on this part of the work were submitted to this association in February of last year at the annual meeting. A draining test to be performed on a sample from the beater to indicate the slowness of the stock in losing its water on the Fourdrinier wire, and a standard sheet mould for making test sheets from the pulp out of samples taken from the beater, were developed and brought into play. On these standard test sheets tests were made for bursting and folding strength, for shrinkage, and for ink absorption. By making these tests on samples taken at specified intervals throughout the beating of a furnish of stock, and plotting the results against a scale of time, curves were made which described the development of these various properties as the beating progressed. Added to these curves were curves showing the handling of the roll transferred to the same time scale.

Control of Beating Action

The first step, then, in gaining control of the beating action is to enable the beater second hand to furnish always to the same thickness, that the density variable may be practically eliminated. To weigh all the stock and to meter all the water is possible, but not promising as to operating cost. The possibility was considered of obtaining a sampling test of thickness which might be used as a guide. For example, a specified volume of stock might be placed in a vessel the bottom of which is a standard sieve and compressed under a specified force by a piston, and the distance through which the piston travels in a given time might bear a relation to the proportionality of stock to water. Some work was done on these lines. But the obvious fact was soon too strongly emphasized by experience that it is almost impossible to obtain a fair sample of the stock at the critical moment, because at that moment the mass is most stiff and least homogeneous. A local additional of stock or water might deceive the operator completely. Again, sampling tests do not produce records, do not leave any evidence by which the management may tell afterward whether the operation was actually carried out as specified.

Governing Density

Some promise of usefulness for governing density was offered by the drag, which, as we have seen, is a viscosimeter. The addition of stock, having the effect of stiffening the mass, raises its viscosity; that is, increases the internal and skin friction of it as a fluid mass. When the second hand is trying to regulate the thickness of his furnish, it is only the addition of stock or water that will alter the viscosity of the mass; since the interval of time is short, is nearly the same for one furnish as for another, and the changes in viscosity due to roll action may therefore be neglected. Moreover, we have the option of keeping the roll up while getting the thickness, still further reducing our possible error.

There is just one factor besides viscosity that will increase or diminish the total drag pull, namely, the static head over the drag bulb. This must be maintained as a specified and constant quantity while any attempt is made to judge of density by the drag.

Two Tests of This Theory

Two tests of this theory, made with the first design of drag, that which had the spring balance on the side of the beater tub, are given here:

Date (1913).	Clock Time.	Beater.	Grade.	Density (Per Cent. Solid).
April 18	11:05	5-2	F.L.	7.9
April 18	12:09	5-3	F.L.	7.5
April 18	1:38	5-1	F.L.	7.9
April 18	2:11	5-2	F.L.	7.6
April 18	3:26	5-3	F.L.	7.6
April 19	10:34	5-2	C.S.	7.4
April 19	11:38	5-3	C.S.	7.3
April 19	1:09	5-1	C.S.	7.5
April 19	1:55	5-2	C.S.	7.7
April 19	3:35	5-1	C.S.	7.3

The operation of regulating density in these tests was performed by one of the experimenters. In the following tests there had been an improvement in the design of the drag, and the work was done by the beater second hands in regular course:

Date (1916).	Clock Time.	Beater.	Grade.	Density (Per Cent. Solid).
February 15....	11:50	7-1	L	6.96
February 15...	2:10	7-2	L	6.83
February 15....	3:30	7-1	L	6.96
September 16...	10:40	1-1	C.C.	6.66
September 16...	11:20	1-5	C.C.	6.77
September 16...	12:00	1-4	C.C.	6.76
September 16...	12:40	1-3	C.C.	6.78
September 16...	1:20	1-2	C.C.	6.43

Procedure in Thickening

At Cumberland mills the waste papers are disintegrated and brought to the beaters in cars of standard size to be shoveled. The sulphite is run from a bleaching system over a wet machine into standard cars, and is thrown into the beaters with tongs. The clay is added in suspension in water, and the size in emulsion, both measured by volume. The alum is dry and is measured by weight. Rag stock when used is usually measured by weight, as is the unbleached sulphite. All of these ingredients, therefore, are subject to independent measurement by either weight or volume, and there remain the soda pulp, which is pumped to the beaters in slush form, and the water, to be governed. The procedure in thickening, then, is arranged as follows, referring, for example, to the 1,500-pound Jones beater:

A scale of inches of depth is made near the end of the midfeather, counting up from the bottom. Enough slush soda pulp is run in to keep up a circulation while the sulphite is put in, the circulation to be rapid. While adding the bleached and unbleached sulphite, the second hand must use cars to keep the mass turning well, and to have the stock well spread. Soda pulp is then run in until the surface of the mass reaches 30 inches on the scale on the midfeather, with the washing cylinder lowered and working. While water is being extracted, soda fibre is being added in a slow, even stream, just fast enough to maintain the surface of the stock at 30 inches. During this time the arrow of the drag is rising. This action is maintained until the arrow reaches a specified figure on the drag scale, say, 340 points. Soda pulp is then shut off, and the extraction of water by the washing cylinder is continued until the surface of the stock has been depressed to another specified point on the vertical scale on the midfeather, say 26 inches. The washer is then hoisted and the clay and size added. The furnish is then complete except for the color and alum and disintegrated waste papers, which may preferably be added at the close of the run.* This is a nice operation,

*Disintegrated waste is added at the close of the run from considerations of quality and this introduces no error in density. Certain grades of waste, however, are not easily disintegrated, and must be added with the clay and size to insure against the appearance of "sheets" in the paper. Owing to the clay content of the waste, it should not be added until the washer is up, for it will clog the meshes of the washer.

Indanthrene Blue

(Patented)

For Tinting

The Standard for Fastness

INDANTHRENE, LITHOL, AUTOL COLORS AND ANILINE DYES

to meet all trade requirements in shade and fastness. Microscopic Analyzing of Samples as to Fibres and Accurate Matching of Samples as to Shades UPON REQUEST.

BADISCHE COMPANY

calling for close attention and unusual care on the part of the beater second hand.

Carrying Uniformity to Paper Machine

Much detail, which it is not necessary to present, was undertaken to determine how the uniformity of density possible by these means in the beater could be carried over to the paper machine. The water added in dumping must be governed; the stock from one beater must be well mixed with that from others already in the chest; and subsequent additions of water must be uniform. We placed in the chest a liquid level gauge made by the Foxboro company, Foxboro, Mass., and mounted its automatic recorder on the wall near the beaters. We specified the amount by which the dumping of one beater should raise the height of stock in the chest, and that fixed the quantity of water added in dumping. We made this specification such that the density in this chest was proper for running through the refining engine, so that no additions of water were made until the stock reached the paper machine. Still, two unknown factors remained, the dumping of the machine save-all into the machine chest, and the working over of wet broken in the beaters. These factors are occasional, and may or may not be disturbing.

In order to thicken the furnish according to the drag, one of the fiber ingredients ought to come in slush form. The uniformity of density with which the slush ingredient comes to the beaters ought to be tested, and the washing cylinders ought to be kept in good working order. If it requires a long time to reach the specified thickening point, the furnish will be more dense than if the same thickening point is reached in a short time. Shortening this time, too, offers an opportunity to economize in beater capacity per day.

Experiments on Manufacturing Orders

So much for the matter of controlling density. With the first arrangement of drag, and a wooden obstacle attached similar to the final shape adopted, a long course of experiments was made on manufacturing orders noting the effect of treatment on all variables of the stock that we could measure every minute of the run. Curves were plotted from these observations and studied.

It was soon discovered that important changes take place in the physical paper-making qualities of the stock after the early part of the beating period, when the surface slope (1) is changing too little to be measured. A gage as accurate as the hook-gage for measuring the surface level of water would be required to get significant results from the surface slope after the rapid changes of the early part of the run are over, and the surface itself is not smooth enough for such fine work.

Curves of some apparent significance were obtained from measurements of the speed of turning (3), but changes in the setting of the beater roll were not reflected in the speed of turning. The beater man would be at a loss were he to be governed by the speed of turning, to know how much to alter the setting of his beater roll in order to obtain a given change in the speed of turning.

The drag proved to be quickly responsive to the roll setting, and it offered a kind of measurement that is easily read and understood, provided that its relation to the kind of treatment that the stock ought to receive was definite and trustworthy. Experiments indicated, too, that with curves of these variables, the total change from first to last is not the important thing, as governing the result; it is the conformity of the curve. The curve must have a certain shape as well as a certain total change of value, in order to insure that the beating has been carried on in a given manner.

Experiments on Special Small Beater

These questions were further investigated in a long series of careful experiments on a special small beater and its paper machine which were devoted to this work. Curves were plotted of drag readings, speed of turning, and roll setting, while the beating was in progress, and samples were taken at specified times from which standard pulp sheets were made and tested for bursting strength, folding strength, shrinkage, and ink absorption.

So far, then, we had obtained indications, though not rigorous proof, that if we regard the viscosity of the mass in the beater as being the characteristic variable of all those set in motion by the action of beating, and if we use the viscosimeter as a guide, we may get substantial control of the beating process, and we shall certainly be nearer the solution of the problem than by any other means yet in view. It remained to test this principle in mill practice.

System of Operation Developed

A system of operation was developed about the drag and applied to the beaters for one paper machine, with confidence in the outcome on the part of no one connected with the organization. No one who had not stood beside the beater and followed the experiments which have just been briefly outlined, had any faith that our conclusions were sound. The few of us who had been through the experiments together felt assured that there were results immensely worth while to be obtained; but the matter was now to be tested and judged upon the authority of those whose prime duty was to operate the mill, to whom the entire effort appeared to be a distraction from important routine business, whose minds had admitted no reason why the task of working out this problem to a conclusion should have been undertaken at all. Unfortunately, too, such qualities in finished paper as formation, hardness, snap, finish, freedom from fuzz, and feel, essential as they are for the trade, cannot be put down in figures and thus removed from the domain of individual opinion and caprice. It is not until a better standard of results on the whole has been demonstrated over and over again through long months of mill practice that a man may be expected to open his mind to a proposition he has once predicted would fail. The drag system, however, had produced this change in the minds of many of us after nearly two years of painful, uphill, patient, work; and now the organization as a whole is quite ready to welcome its extension to all of the beating. The plan was extended in July 1915, to two other sets of beaters, involving it in widely different qualities of paper to be made, and results equally good with those previously obtained have followed in both cases. These are four in number:

(1). There is much less trouble on the paper machine in maintaining ream-weight.

(2) The resulting paper is distinctly more uniform as to quality.

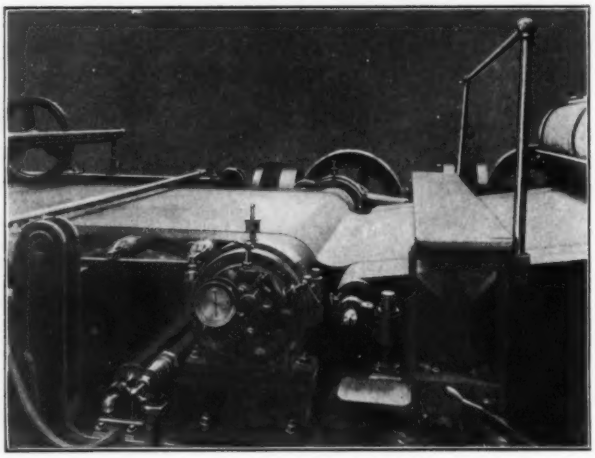
(3) Given a sample to match, or a former run to equal, there is a definite way to go about it, and success is much more often assured.

(4) Given a modification, even though slight, in quality to be made, the beating may be altered to a definite extent, the modification produced, and then maintained.

Every Order for Paper Has Beater Instructions

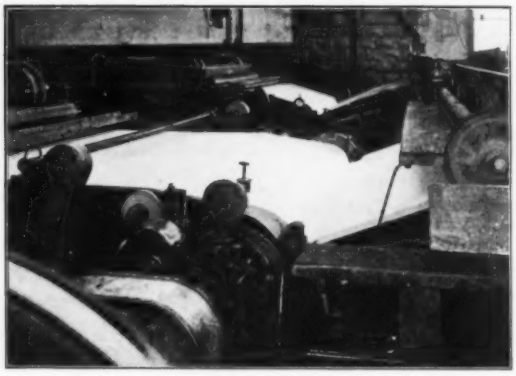
The system of work that has been built up around the drag includes, of course, the operation of "thickening" the furnish to the required density. This as well as the rest of the methods laid down, is set forth in written instructions to beater men and helpers. Each order for paper issued for the beaters carries the required point on the drag scale to which to thicken the furnish while maintaining the surface of the stock at 30 inches according to the scale on the midfeather, the point on this scale to which the surface of the stock must be lowered by washing, and the number of feet to tenths of a foot by which the chest must be filled in dumping the beater.

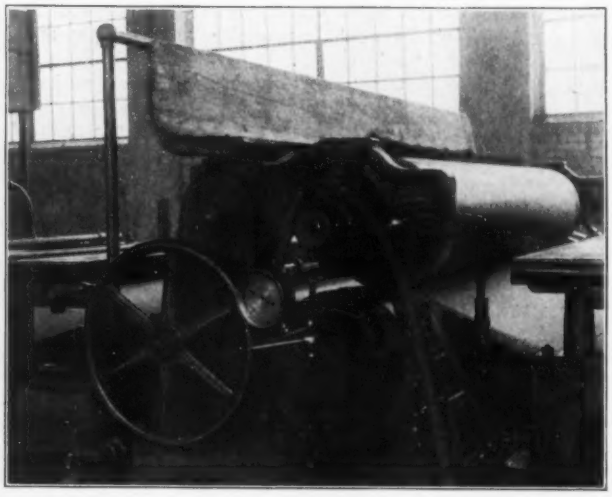
On each drag a card is placed for each order. When the required thickening point is reached by the beater second hand, he signals the beater man who sets the roll to working position and marks that moment as the zero of time. At the moment the



Cut at left shows a Suction Couch Roll installation for roofing felts. The best felts and straw papers are made on Fourdriniers so equipped, while production is much greater than on Cylinder machines of equal width.

Cut at right shows typical Millspaugh Patent Suction Couch Roll installations. These rolls, on sulphite bond papers, repaid their cost every four months. This mill use them on all their machines. Speed was increased 50 feet or more per minute and at same time steam pressure at driers was reduced from 15 pounds to 4½ pounds. Paper was better and production increased.





Cut at left shows a Suction Press Roll on a felt making machine. Saves felts, increases production, improves quality. Used also for News, Fibres, Grease proof, Straw, Rope, Bonds, Boxboard, etc., to advantage.

We manufacture Press rolls of iron, also bronze and rubber covered. Brass and bronze tubing, Triplex Stuff and Water pumps, Vacuum pumps and Millspaugh Patent Shower Pipes.

Prompt shipments. No war prices.

THE SANDUSKY FOUNDRY & MACHINE CO.

SANDUSKY - - - - OHIO

thickening point is reached and the roll set down, the beater man sets the hand of the watch at zero.

The washing cylinder, which is still down, extracts water until the height to which the surface of the stock must be brought has been reached; the washer is then raised, the clay and size and certain waste paper, (if any) are added, filling the beater and allowing the indicator at fall. The addition of these things disturbs the evenness of the furnish; the stock must circulate for a time to become again thoroughly mixed; meanwhile the unevenness of the furnish is indicated by the drag pointer moving up and down. Its tendency, however, is strongly downward. Forty minutes from the zero of time is allowed for the furnish to become even, and the drag pointed to steady down, during all of which time the roll is working.

Should "Straighten Out" at Same Point

Referring to the drag card there are ten columns of figures, their corresponding numbers separated by 5. The top of a column is a point at which the drag may "straighten out" at the end of this forty minutes. Now, if the thickening has been done nicely, and the washing stopped at exactly the right point, each successive furnish for the same order in the same beater would "straighten out" at the same point. But the disintegrated waste may be more or less moist; the slush soda pulp may have been thick or thin within limits, the thin pulp requiring a longer time to thicken and a consequent higher density; the roll action during the first forty minutes may have caused a greater or less reduction of drag reading in that interval;—all these things being beyond the control of the beater man or second hand. Hence the ten columns of figures. The furnish may straighten out on any one of these and be called good, and that point is marked by a spring clip over the column to be used. As far as that furnish is concerned, that column then contains a reading of the drag to be reached, within a margin of three points plus or minus, every twenty minutes. If the drag curve is not reducing as rapidly as this column indicates, the roll must be set down a little harder; if the reduction is too rapid, the roll must be raised slightly. There is great skill in doing this thing right and not going too far.

At the bottom of the drag card is indicated the number of minutes from the zero of time that the roll is to be kept in working position, and the number of minutes to elapse before the roll is to be stopped from turning.*

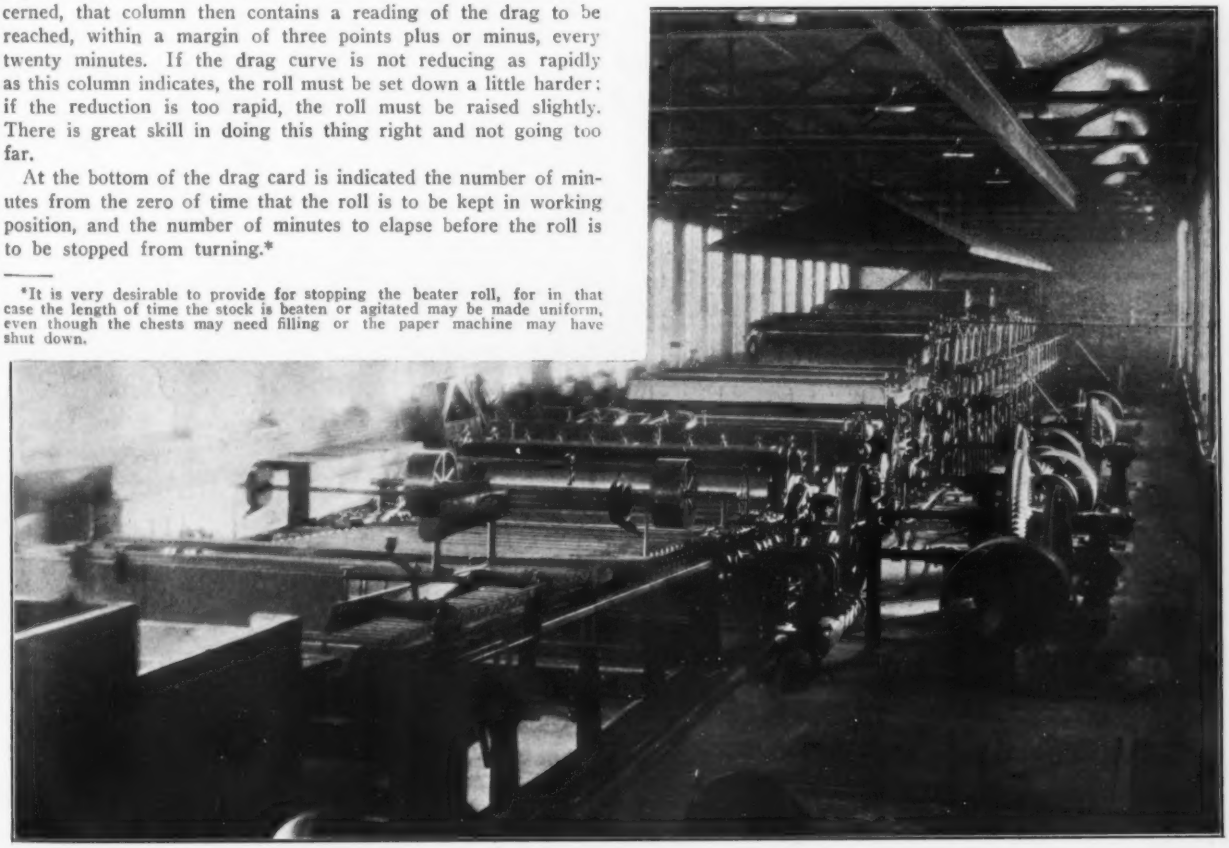
*It is very desirable to provide for stopping the beater roll, for in that case the length of time the stock is beaten or agitated may be made uniform, even though the chests may need filling or the paper machine may have shut down.

By making out these cards before the order is given to the beater man, we set the drag curves which are to be followed. It is the duty of one man to do this. It is interesting work. Where there is more than one beater for a paper machine, he must make out a different card for each beater, for the stock from all must match in quality, and the beating characteristics of two beaters are very rarely the same. Even the straightening-out points are different where the thickening points are the same because of differences in speed of turning at the same density and the same period of the run. Moreover, both of these factors, straightening-out points, and curve characteristics, must be altered from time to time as the beaters wear or are renewed, or as the characteristics of the raw stock may gradually change, the criterion being the matching of the stock as between beaters and the performance of the paper machine.

We have thus developed a practical plan "WHEREBY THE MANAGEMENT CAN GIVE TO THE BEATER MEN AND THEIR HELPERS DEFINITE DUTIES TO PERFORM, WHICH CAN BE UNDERSTOOD AND MEASURED BY A COMPETENT PERSON NOT HIMSELF DOING THE WORK, THE RESULT OF WHICH WILL BE GREATER UNIFORMITY IN THE TREATMENT OF THE STOCK."

Turning to the Human Side

So much for the technical phase of our problem; we may now turn to the human side. It was quite possible for a few of us, working in a "non-productive" capacity, more or less apart from the mill itself, to work out practically every thing that has been described; and it would be quite possible for us to go ahead and work out a great deal more of a technical nature in the same way; but the essence of the problem would be missed and the mill would receive scant benefit. For the essence of the problem



VIEW IN MACHINE ROOM, NORTHWEST PAPER COMPANY, BRAINERD, MINN.

JAMES ROSENBERG, President. L. W. BAUMOHL, Vice-Pres. & Treas.

AMERICAN WOODPULP CORPORATION

New York
140 NASSAU STREET

Stockholm
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FOREIGN AND DOMESTIC

WOODPULP RAGS

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MACKMYRA SULFIT A.B.
Strong Unbleached Mitcherlich Sulphite

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Fine Easy Bleaching Sulphite

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DAYTON, OHIO
R. R. REED, Manager

NEW MILL OF NORTHWEST PAPER COMPANY, BRAINERD, MINN.

is human will power. If our purpose had been satisfied with the contrivance of a machine, and the proof that this machine can be made capable of certain things; if we had not gone beyond the development of a way to hold the treatment of our stock more uniform; then, so far as making any impression on that great concern of human relationships is to be thought important, or making a substantial improvement in the operation of our works, we should have stopped far less than halfway. Yet, that seems to be where the average business man wants to stop. Whenever the facts gained by technical study call for an important change in ways of doing things in the plant, then the utilization of these facts leads into matters of relationship between management and men, the right sense of obligation toward each other, the just assumption of duties; and the rule seems to be that the workmen are usually more ready to have these matters approached than their employers.

Square Deal Between Workmen and Managements

If what has just been said is true, please notice again, if you will, the new duties, responsibilities, and obligations that the management has assumed with regard to its beater men,—the duties of direction in detail with precision, the responsibility for the results, and the obligation to furnish its beater men with competent gudance and adequate method as well as with materials and equipment. For the great factor in paper making, as in all industry, is the human factor. In the judgment of the writer, the most important class of technical work which this Technical Association can undertake is that class which paves the way for the square deal, the right relationships as between workman and management. It is a class in which success is bound to hinge to a peculiar degree on the hearty initiative and enthusiasm of the company from the top down, and no concern will be in the least danger of touching upon right human relationships that is not dead in earnest about it from the word "go."

NORTHWEST CO. BUILDS NEWS PRINT MILL

The only news print mill to be built in the United States during the year 1916 is the new mill of the Northwest Paper Company, now under construction at Brainerd, Minn., which will begin operations about April. About 35 tons of news per day will be turned out by this mill, which will be supplied with sulphite pulp by the Northwest Company's sulphite mill at Cloquet, now eighteen months old. The ground wood pulp will be manufactured at the plant.

For the ground wood mill there will be a hydraulic development of 5,000 H.P., while the paper mill will be operated by electric power. There are ten hydraulic turbine units of two wheels each, furnished by S. Morgan Smith Company, and two 450 KVA generators, which, with switchboard and motors, are being furnished by the Electric Machinery Company.

Brick, Steel and Concrete Construction

The buildings are all of brick, steel and concrete, with plank roofs, except for the boiler house and fire pump room, which have reinforced concrete roofs. The dimensions of the buildings are as follows: hydraulic power station and grinder room, 182 ft. by 61 ft.; room for pumps, etc., 45 ft. by 41 ft.; wood preparing building, 69 ft. by 38 ft ; wet machine and screen room, 92 ft. by 60 ft.; steam engine room, 22 ft. by 60 ft.; boiler room, 37 ft. by 60 ft.; beater room, 46 ft. by 74 ft.; machine room, 252 ft. by 47 ft.; finishing room, 110 ft. by 92 ft.; machine shop, 54 ft. by 36 ft.

Mill Equipment

The ground wood equipment includes eight four-pocket grinders, four centrifugal screens, three 40 in. by 96 in. deckers, and four 84 in. wet machines; grinders by the Union Iron Works, and wet machines, etc., by the Improved Paper Machinery Company. The paper mill is equipped with three 1,000 lb. beaters, one Jordan refiner, both furnished by E. D. James & Sons Company, and one Fourdrinier, furnished by the Beloit Iron Works. The paper machine is equipped with many novel attachments, has a speed of 700 feet per minute, and is operated by a steam engine of the Corliss type furnished by the Vilter Manufacturing Company.

All of the construction work is being handled by the company's own organization, under the direction of George F. Hardy, of New York, paper mill engineer.

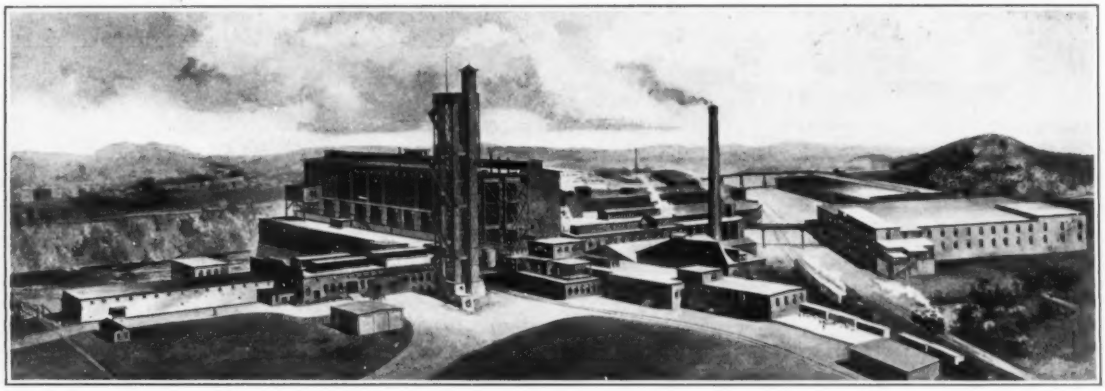
Every paper manufacturer and dealer needs Lockwood's Directory of the Paper and Allied Trade. The 1917 edition contains all the up-to-date trade information. Order now. The price is $3.

Daily Production

450 AIR DRY TONS

HIGHEST GRADE

BLEACHED SULPHITE FIBRE



TO OUR CONTRACT CUSTOMERS.

We take this opportunity to express our appreciation of the loyalty, consideration, and co-operation given us during the past year, under unprecedented conditions which we realize were no less trying for you than for ourselves; and it is with great pleasure that we are able to state that practically every contract customer for 1916 is again a contract customer for 1917.

BURGESS SULPHITE FIBRE COMPANY

MILLS AT BERLIN, N. H.

GENERAL OFFICES
Portland, Maine.

NEW YORK OFFICE
Woolworth Building

Electric Motor Application to Paper Machinery

Inherent Reliability, Economy and High Efficiency of Electric Drive Should Recommend Itself to Everyone in the Paper and Pulp Industry Which was Among the Pioneers to Adopt This Form of Power—Increases Percentage of Power and Is Big Factor in Reduction of Operating Expenses.

Paper Read at Technical Section by W. W. Cronkhite

The large amount of power required in the paper industry necessitates the most careful application to secure economical operation. If this is done, the maximum output for a given investment in plant and power is the result.

The inherent reliability, economy and high efficiency of electric drive as compared with other methods recommends itself to the adoption of electricity. One must be assured of uninterrupted service—also a definite saving in the cost of production, either by a low installation expense, by increasing the percentage of power actually applied in useful work, or by a reduction in operating expense.

The paper and pulp industry was one of the pioneers among large manufacturing plants to realize the benefits of electric drive. The use of the electric motor in paper and pulp industry has grown so rapidly that at the present time a conservative estimate of the motors installed in paper and pulp mills in the United States is close to 300,000 H.P. Electricity is the only practicable power distributing agent that allows the centrilization of the power generating apparatus in one efficient station, and at the same time affords the flexibility of distribution necessary to allow the layout of the plant to be made entirely with a view to its manufacturing efficency. However, electricity is more than a convenient agent for distributing power; its assistance in the economical *application* of power direct to the machines is also of the greatest importance.

There are many special applications of motors to pulp and paper machinery that assist the manufacturer in getting the maximum production from his mill. In applying motors, however, both group and individual drive must be considered, and the choice determined by conditions. Motor drive assists the manufacturer in re-arranging or adding machinery to take care of an increasing business.

To cover the complete engineering end of the industry would mean much technical data and it is not the intent of this article to do more than make general recommendations in the briefest manner.

Wood Conveyors

This wood conveyor shown in the accompanying illustration is driven by an induction motor, the motor being located in the frame building to the left of the picture. Tests which we have taken would indicate that wood conveyors will take 1½ H.P. per 100 feet of length when running at 100 feet per minute. Some paper and pulp companies, however, make a practice of running their conveyors up to nearly 200 feet per minute and allow 5 H.P. per 100 feet of length. This may give a little larger motor than necessary but is an insurance against trouble due to high peak loads that may be encountered if the wood jams in the trough, also it insures ample starting torque if the conveyor is started with the trough full of wood.

Barkers

Individual drive is an ideal way to drive barkers. This photo-

Wood Conveyors Operated by Electricity.

THE BIGGS BOILER WORKS

PLANT HYDRAULICALLY EQUIPPED

Builders of Spec

ROTARY BLEAC

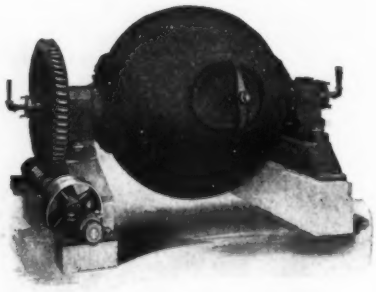


FIG. K.

Figure K Illustrates our **Experimental Type Globe Rotary Bleaching Boiler** with **Welded Joints**, and **Worm Wheel Drive.** This type is usually furnished in sizes from 3′ to 5′ diameters.

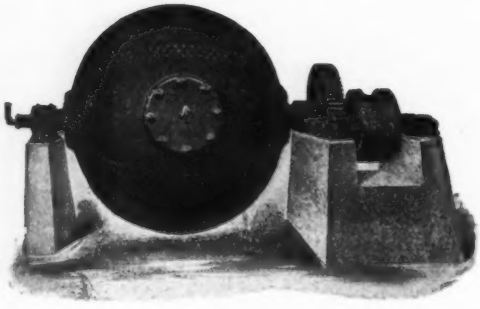


FIG. S.

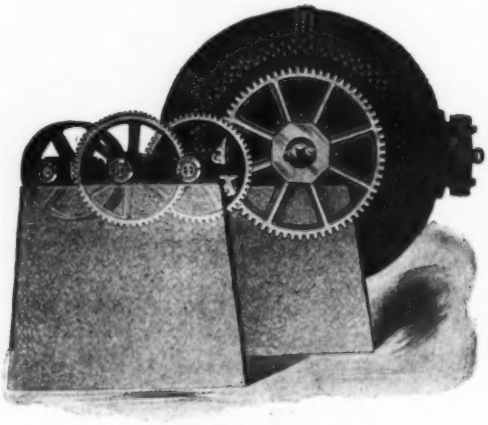


FIG. S-1.

Figures S and S-1 show one of our **Globe Rotary Bleachers** with Riveted Joints and Spur Gear Drive. We furnish this Rotary in 6′-8′ and 10′ diameter with either Worm or Spur Gear Drive. This type is commonly used for **Special** or **Experimental Work,** but is not too small for practical purposes.

Fig. B is the Baby. Furnished in such sizes as **6″ dia. x 18″** (or larger) long. Just the thing for your **Laboratory.** Complete equipment **ready to operate.**

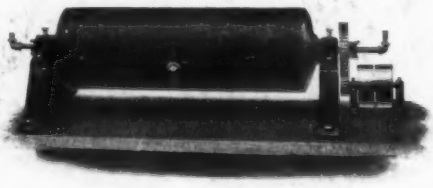


FIG. B.

LIGHT AND HEAVY PLATE CONST
PIPE. STEEL TANKS O

COMPANY, Akron, Ohio, U.S.A.

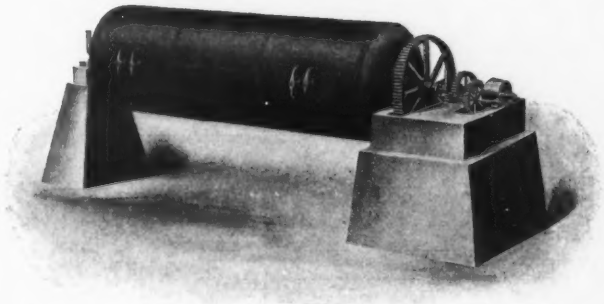
ESTABLISHED 1887

ial and Standard

HING BOILERS

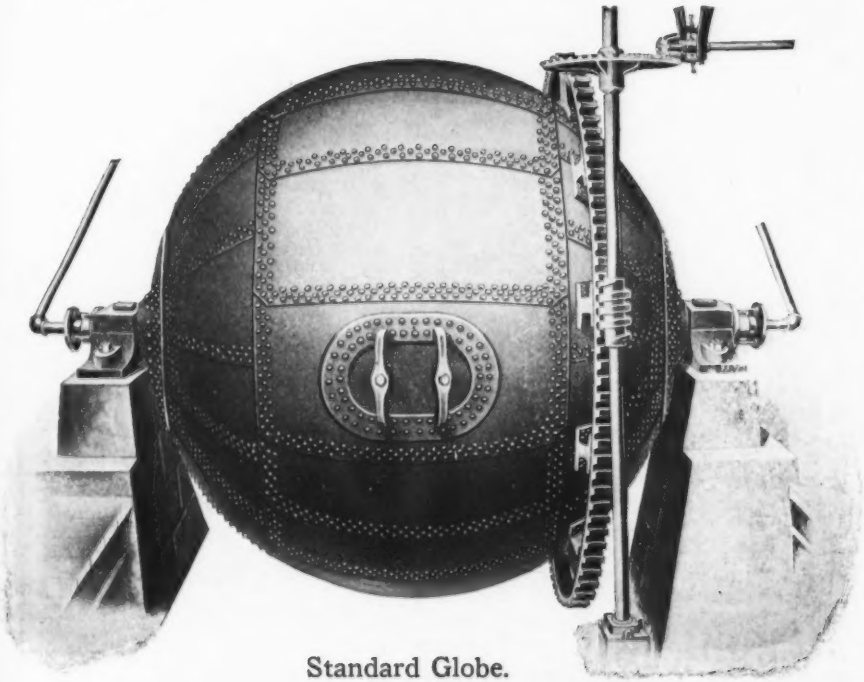
Our **Cylinder Rotary Bleaching Boilers** are furnished with **Worm** or **Spur** drive and in all sizes.

They are the **acme of perfection in Rotary designing.**



8′ x 24′ High Pressure Cylinder Rotary

Large Journals, Babbitted Journal Boxes and **Expansion** bearings save power for **you.**



Standard Globe.

Our **11 ft. and 14 ft. dia. Globes with Worm and Segment Drive** need no introduction. They are the **Standard Rotary Bleaching Boiler of today.**

Furnished in any type of drive, and for any pressure.

Let us figure on your Rotary Requirements.

RUCTION. RIVETED STEEL WATER
F EVERY DESCRIPTION

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graph shows an induction motor on a 5-foot barker installed in a Wisconsin mill. The power consumption we find varies somewhat with the material and of course, with the speed. Tests which we have taken on a 5 foot barker driven by a 15 H.P. 720 revolution direct connected motor showed a maximum requirement of 12 H.P. and a minimum of 7 H.P. and a minimum of 7 H.P. Squirrel cage motors are recommended but inasmuch as starting conditions are severe, due to heavy load to be accelerated, it is important that an indestructible type of motor construction be used. 12025 shows group drive on barkers in a pulp mill in Maine. There may be, of course, conditions when it would be best to recommend group drive.

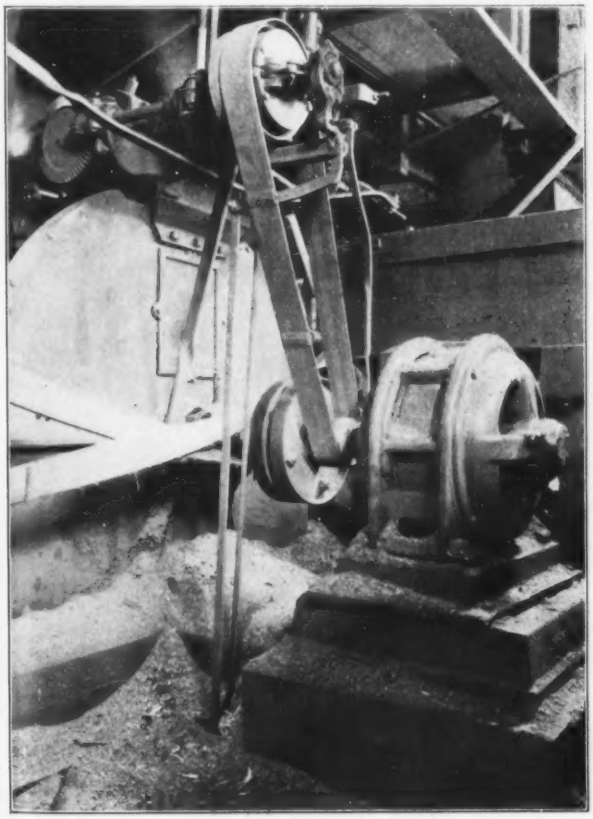
Grinders

Motor driven grinders are finding an increasing field when it is desired to locate the pulp mill at a distance from the water power, or where power is purchased. Also motor driven stones can be used to supplement the work of the water wheel driven stones in time of low water.

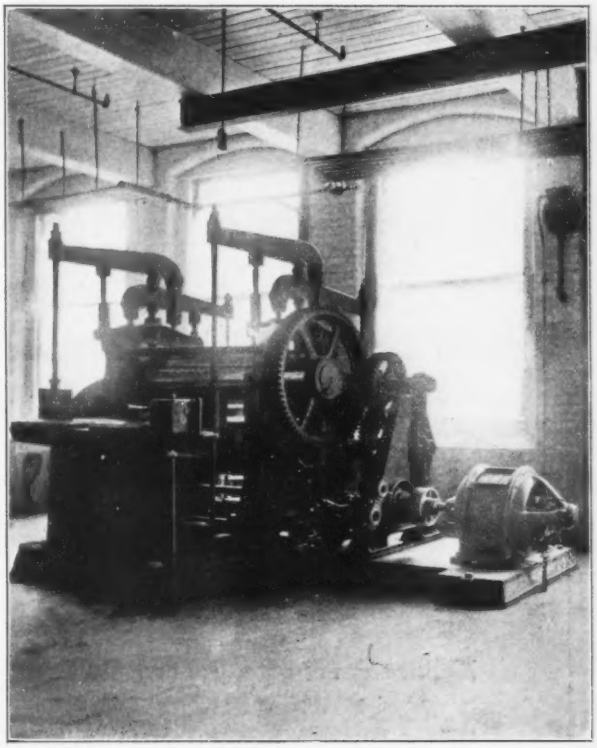
The picture shows 1200 H.P. G. E. motors direct connected to two four-pocket grinders, one on each end of the motor. This same arrangement with two stones on each end of the motor has been adopted in some mills. The reason for placing half of the stones on one end and half on the other is in case of accident to a stone, the coupling can be opened at the end of the motor and the stone or stones on the other end operated. This arrangement may not be of very great practical importance and many installations are being made with all the stones on one end of the motor. This allows the motor and controlling apparatus to be placed in a separate room, free from dirt and slush, and also permits of easier handling of the wood. Power required to drive grinders varies considerably with the pressure. Tests taken on a 1200 H.P. motor, driving four three-pocket grinders with 54" diameter by 27" stones at 255 revolutions, full load speed, and with a water pressure of about 55 pounds per square inch in 18" diameter cylinders, showed that it required 104 H.P. to drive the four stones light with no wood in the pockets, and as each pocket was filled with wood and the pressure applied, the power was increased by an average of 105 H.P. per pocket. On this basis, allowing 26 H.P. for windage and bearing friction, a three-pocket grinder should require 341 H.P. The power consumptiono would increase or decrease proportionately as the speed and pressure increased or decreased. We must bear in mind, however, that in driving a group of grinders it is seldom that all the pockets are full at one time; in the test referred to it was found it took 40 to 50 seconds for the attendant to fill a pocket with wood and that the time between successive fillings was sometimes as low as four or five minutes. During this period the power consumption drops off. Therefore, instead of 1364 H.P. required to drive four three-pocket stones, we find the average load actually would not exceed 1250 H.P., because there would be an average of more than one pocket empty all the time.

There seems to be some uncertainty about the best speed for grinders even among the manufacturers. We have motors on this work, ranging in speed from 214 to 257 R.P.M. Some paper mill engineers believe that 257 R.P.M. is too high, and a few even advocate speeds as low as 210 R.P.M. Others believe that 257 is not only satisfactory, but gives increased production.

Both slip ring type induction and synchronous motors are operating successfully on grinders. In certain sizes the synchronous motor will work out a little lower in cost.



15 H.P. 750 R.P.M. Form K 440-Volt Induction Motor Driving 5 Foot Barker. Kimberly Clark Company, Kimberly, Wis.



15 H.P. 600 R.P.M. 550-Volt Form M Motor and Panel for Plater, Taylor Logan Company, Holyoke, Mass.

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Screens

Are such small users of power that we will not dwell long on them. The flat bed screen by test on a group of three eight-plate screens showed a power consumption of about 6 H.P. or ¼ H.P. per plate. This we believe is a fairly accurate estimate for figuring motor capacity. Group drive is the proper thing for flats. Rotary and centrifugal screens consume more power. We find that power requirements vary for the different makes from 12 to 20 H.P. and for one centrifugal, which is somewhat larger than the others 30 H.P. is required. Centrifugals may be belt driven, using a quarter turn belt, or a vertical motor may be direct connected to the screen shaft at the top.

Chippers

A test result on a 5 foot chipper working on spruce—2 foot lengths—is interesting. The average load was 56 H.P. Evidently a 75 H.P. motor would be ample to drive a chipper of this size. The load fluctuates and the motor is subject to high peaks due to irregularities in the size of the wood fed into it. We have also test on an 87" chipper showing a maximum peak of 115 H.P. and an average of 75 H.P. Chippers should never be direct connected to motors.

Beaters

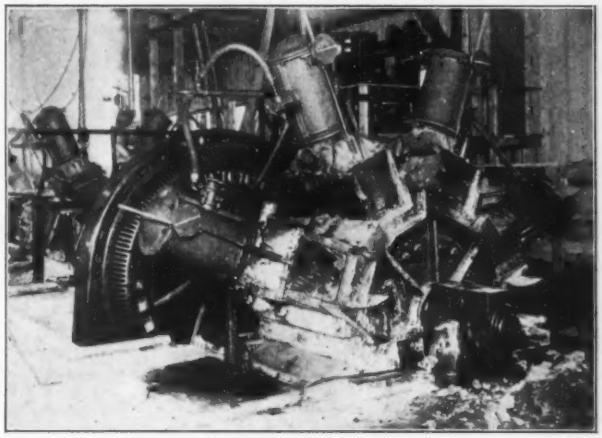
May be driven in groups, in pairs or singly. The picture shows one motor driving two beaters, with the motor placed in the basement and belted to beater pulleys. The choice between arrangements depends upon local conditions.

Jordans

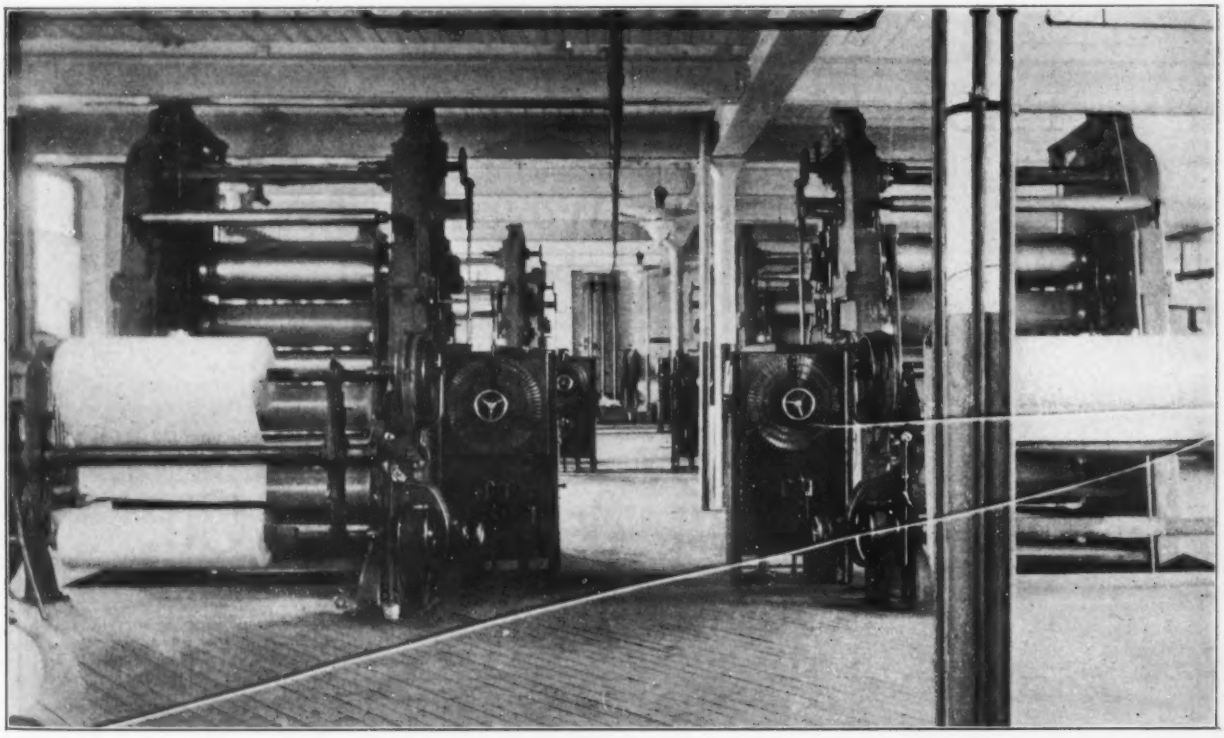
The advantage of direct connected motor to jordans and similar refining engines is its compactness, freedom from belts.

Jordans do not require high starting torque unless the machine is shut down and allowed to stand with the stock in it and the pressure of the plug not relieved. This is not customary of course, as generally the jordan is allowed to clear itself before shutting down and the pressure of the plug is relieved upon starting up.

Squirrel cage, slip ring and also synchronous motors are driving jordans. There are so many conditions in operating jordans that affect the power consumption that it is hard to do other than fix the extreme limits. Motor capacity will depend upon size of jordan, speed, character of pulp, and position of the plug. Differ-



TWO TYPE ATI-30-1200 HP-240 R.P.M. 440 VOLT G. E. MOTORS, EACH MOTOR DIRECT CONNECTED TO TWO 4 POCKET GRINDERS AT THE INLAND EMPIRE PAPER COMPANY'S PLANT AT SPOKANE, WASH.



GROUP OF SIX 9 ROLL FINISHING CALENDERS WITH MOTOR CONTROLLING PANELS. CALENDERS INDIVIDUALLY DRIVEN BY TYPE I-14-75-514-550 V. FORM M INDUCTION MOTOR GEARED TO LOWER ROLL. LOUIS DEJONGE COMPANY, FITCHBURG, MASS.

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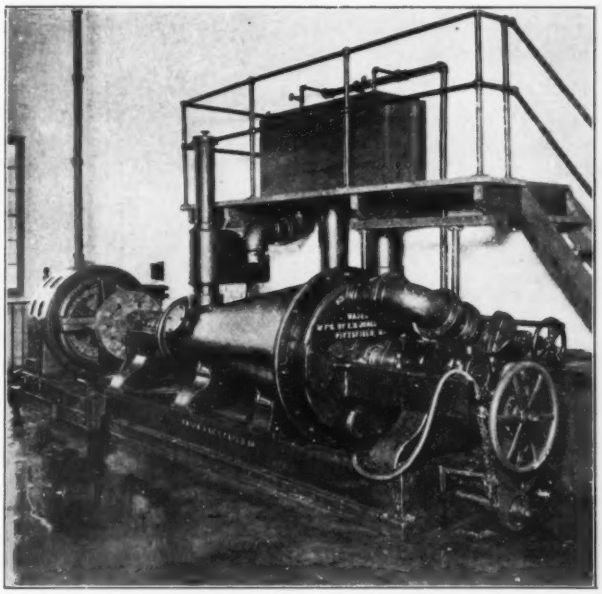
ent mills may obtain considerably different results as far as power consumption goes, even if they are using the same size jordans and working the same class of pulp, as one mill may have a large beater equipment and depend upon the jordan only for "brushing" the stock, while the other mill may have a limited beater capacity and use the jordan in reducing the stock. We have made many tests on the different sizes and makes of jordans, but feel that each case should be looked into by itself before making recommendations as to motor size.

Paper Machines

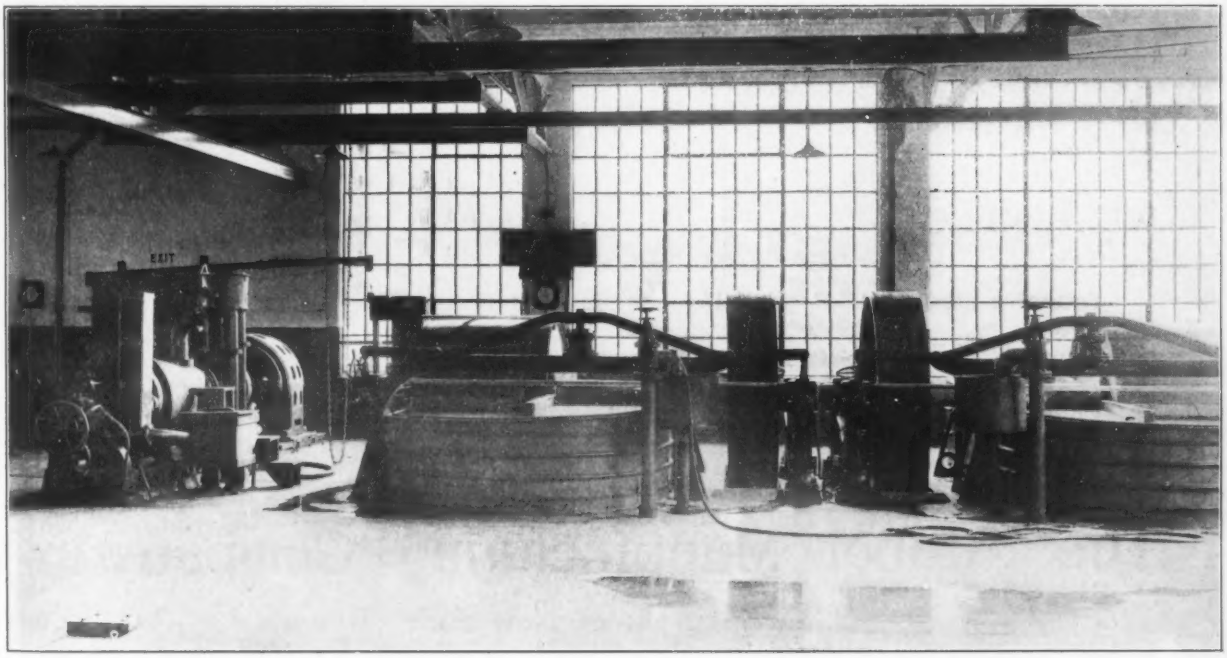
Electric drives for paper machines have engaged the attention of engineers for years, and a great many successful installations are now in operation. Such drives eliminate mechanical speed changing devices and variable speed engines. They confine the power generating apparatus in one central plant, also in case power is purchased, electric drives do away with the high operating cost and trouble incidental to maintaining a few small engines on the machines alone. Bear in mind that there are many cases where it is not economy to put motor drive on paper machines, because steam engines exhausting into the driers will give an overall fuel economy higher than can be obtained by using motors supplied with central station power and using live steam for drying. In new mills this can be taken care of by using steam turbines in the power station and extracting the low pressure steam for drying. This problem, above all others, should be thoroughly studied since the steam demands of paper mills vary greatly depending on the class of product. A scheme that would be economical for one mill might fail utterly in another.

On account of the fairly wide range of operating speed of paper machines, direct current motors should be used for securing this variation, consequently when the power supply is alternating current, a motor generator set is used to transform the power for the paper machine motors to direct current.

A method that has worked out satisfactorily with some of our customers and is well adapted for large machines requiring a wide speed range is to direct connect an engine to the constant speed line shaft, and to a generator of sufficient capacity to furnish power for the variable speed section, the latter being driven by a motor coupled to the back line and controlled from the machine room. This method gives an easily controlled and reliable method of obtaining a wide speed range and leaves the engine exhaust for drying.



TYPE I-14-225-A-343 FORM L MOTOR DRIVING JORDAN, FENIMORE MILL, UNION BAG AND PAPER COMPANY, HUDSON FALLS, N. Y.



DIRECT CONNECTED JORDAN DRIVEN BY 150 H.P. MOTOR AND 1000 POUND BEATERS BELT DRIVEN FROM LINE SHAFT DIRECT COUPLED TO 400 H.P. MOTOR LOCATED ON FLOOR BELOW—BEATER ROOM, STRATHMORE PAPER COMPANY, NO. 2 MILL, WORONOCO, MASS.

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THE **ONLY DRY ROSIN SIZE** which will dissolve absolutely in hot water. Needs **no re-cooking or addition of soda ash.** Will dissolve in less than one hour.

Dry Size saves freight on water and will save from 25 to 40 per cent. of your size bill. Can be stored in any place. Will give a better color and, where required, a hard sized, snappy sheet. Ask us about the results we are having **with other mills.**

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100 William Street, New York

An analysis of tests which we have taken shows that in Fourdrinier and single cylinder machines the power to operate the entire machine (including both constant and variable speed ends) can be arrived at by this formula.

H.P. = .004 to .0045 × width in inches × speed in feet per minute.

The power for the variable speed end alone runs from about .0023 to .003 H.P. per inch width per foot per minute speed.

For multi-cylinder board machine the power is very much higher, ranging from .012 to .015 H.P. per inch per foot per minute for the entire machine, and from .0069 to .0088 H.P. per inch per foot per minute for the variable speed end alone.

These figures are in actual brake H.P. and should be increased 10 per cent when comparing with tests of indicated H.P.

Super-Calenders

Several arrangements of motors for driving super-calenders have been installed. The one motor drive depending upon resistance in the secondary circuit for threading gives an unstable threading speed and also consumes considerable power. Super-calenders work from 20 to 30 per cent of the time at the low speed. It is, therefore, apparent that a motor large enough to drive the calender at calendering speed if operated at one-tenth speed for threading, 30 per cent of the time is a very inefficient equipment.

The picture shows a group of calenders each driven by 75 horsepower motors geared to bottom roll of the stack.

With single motor drive the threading speed is obtained by inserting resistance in the rotor circuit; after the paper is threaded through the stack the motor is gradually brought up to the desired speed by cutting out resistance by means of the dial controller. From an engineering viewpoint it is open to serious objection as the slow speed requires a speed reduction of about 90 per cent below normal. This makes the threading speed very unstable and requires care on the part of the operator while threading. In fact, single motor alternating current drives have proven unsuccessful at other plants.

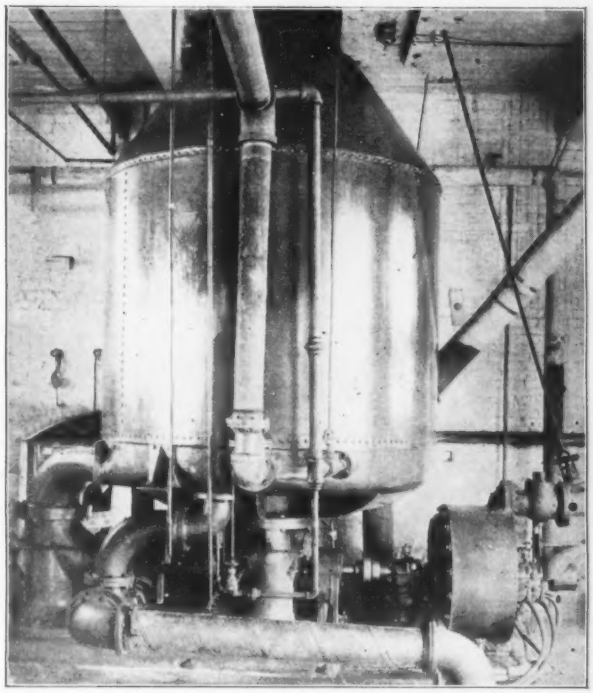
With direct current motors the threading speed can be made somewhat more stable as a certain amount of field control can be used and a shunt resistance connected around the armature to hold the speed down during threading. Even this method is not entirely satisfactory unless the load is uniform during threading, and this condition seldom exists. Further, the power consumption on a one-motor drive (either AC or DC) is excessive at the low speeds.

Now let us consider the two-motor alternating current equipment. First, most mills have AC current available. Next, we know that super-calenders are what we call constant torque propositions and the power goes down with the speed. We, therefore, recommend the two-motor drive. It has been developed and installed with a number of modifications to meet varying conditions.

Each push-button station, of which there can be as many as desired, contains three buttons, one marked "slow," one marked "fast" and one "stop." Pushing the "slow" button in any station starts the small motor and drives the calender at threading speed. Pushing the "fast" button starts the large motor and *automatically* brings it up to whatever speed the controller is set for, and at the same time shuts down the small motor Pushing any of the "stop" buttons shuts down either motor that may be driving the stack and *electrically* brakes so the calender will come to rest instantly. This particular arrangement allows a range of calendering speed from 300 to 600 feet per minute and permits slowing down for bad spots in the paper. This is absolutely fool-proof and completely automatic with push-button control.

Platers

The picture shows the first of four-plater equipments installed in a New England paper mill. These direct connected motors are built to stand the jar of frequent reversals. The plater in the picture is a Norwood with 42-in. face and 18-in. diameter rolls revolving at about 17 R.P.M. when motor is running at full speed. The ordinary reversals are about 10, or 5 complete trips of the book, but when working on a corner of the book the reversals are as high as 30 a minute. The controller is mounted on a bracket attached to the plater table convenient to the operator. An enclosed contactor panel is mounted near the plater, containing switches for reversing the motor; these are controlled by the drum controller previously mentioned.



TYPE L TWO STAGE 50 H. P. 1800 R. P. M. TURBINE DRIVING WINESTOCK DE-FIBERING AND DE-INKING MACHINE, STEVENS AND THOMPSONS PAPER COMPANY, N. HOOSICK, N. Y.

Turbines

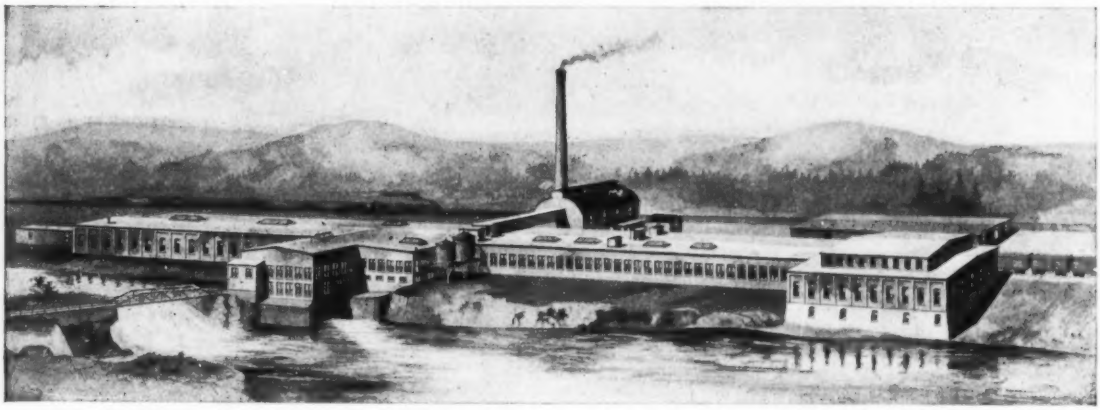
Electricity has been responsible for the modern steam turbine. Paper manufacturers are interested, as their power and heating problems are closely related and the steam turbine gives an ideal flexibility with respect to steam utilization.

A recent use of the steam turbine is its application to the Winestock de-fibering and de-inking machine, as shown in photo 238578. In this installation the turbine not only drives the machine but furnishes steam to heat the stock for the next charge.

The many possibilities of electric drive in paper and pulp mills are partly illustrated in the foregoing views, showing some of the motor-operated equipments. These pictures are typical drives and constitute a strong argument for *general* adoption of motors throughout the industry. In the equipment of the power plant as well as for the individual drive great care should be exercised, both as regards quality and design.

The past week saw more changes in the superintendents at the American Writing Paper Company, of Holyoke, Mass. James Diley, for several years superintendent of the Nonotuck Paper Company division of the American Writing Paper Company, has resigned, and W. J. Livingston, superintendent of the Riverside Paper Co.'s No. 3 mill, has been appointed his successor. Otto Wandel, inventor of the Wandel screen, has been appointed superintendent at the Riverside No. 3 mill to succeed Mr. Livingston.

GENUINE KRAFT



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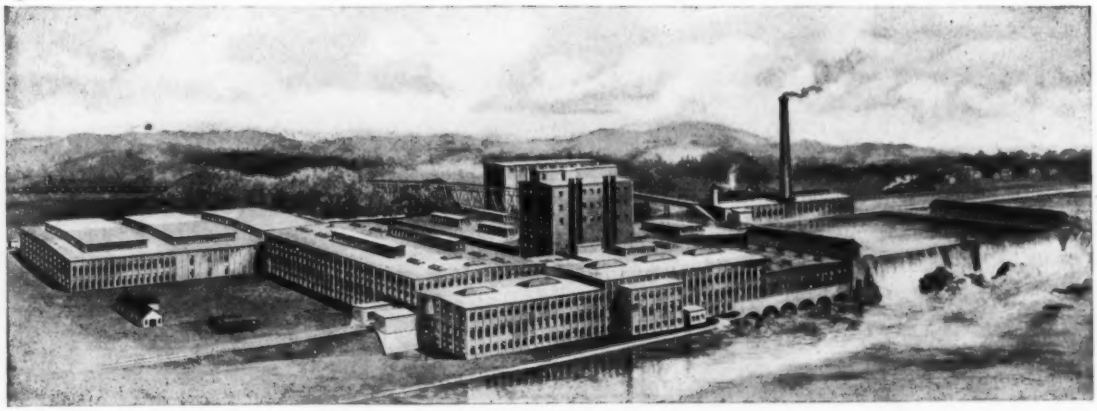

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Production of Methyl Alcohol From the Spent Liquors of Soda Pulp Process

American Practice Early Differentiated Itself From European by Use of More Concentrated Liquors —Attempts Made in Germany and Scandinavian Countries to Cook With Weak Liquors Were Not Successful—Introduction of Multiple Evaporation Marked an Important Step in Industry.

Paper Presented at Technical Section by Prof. Albert E. White and John D. Rue.

The introduction of lime as an agent for the disintegration of straw for paper making is attributed to the Chinese, and the process was in use in Europe in the seventeenth century. The use of caustic soda under pressure for the manufacture of pulp from straw was introduced by M. A. C. Mellier, of Paris, who took out a French patent in 1854 and U. S. patent 17,387 in 1857. The real development of the wood pulp industry came in America, although based on patents of Watt and Burgess, of London, who in 1853 took out an English patent, and in 1854 an American patent, 11,343, whose rights were assigned to Messrs. Ladd and Keen of New York. The first plants for the operation of their process seem to have been erected at Royers Ford, Pennsylvania, and later at Manayunk, near Philadelphia, by the American Wood Paper Company.

The American practice early differentiated itself from European by the use of more concentrated caustic liquors, so that the recovery of the soda by evaporation of the black liquors and incineration of the residue was a feature of the process almost from its infancy in this country. The attempts made in Germany and Scandinavia to cook with weak liquors which might be wasted were not commercially successful, and the American system was introduced into Europe soon after 1870. After its introduction the Germans made important improvements in methods of washing the pulp, concentrating the black liquor and calcining the soda.

The system of alkali recovery in the early mills was copied somewhat from the LeBlanc soda process. The liquor was concentrated in a series of pans heated by direct fire, and the liquor passed from pan to pan, approaching nearer the fire each time. The thick mass was finally calcined in an open pan. Attempts to still further utilize the heat of the gases from the calcining furnace led to the construction of towers through which the dilute black liquor fell in a spray or tumbled down over a series of shelves against the flow of the hot gases.

The introduction of the multiple effect evaporator marked an important step in the industry. The evaporator was what is now the well known Yaryan type invented by Homer T. Yaryan of Toledo, Ohio, in 1886. It was developed and adapted to the concentration of waste liquors from the soda mills by Augustus G. Paine of New York, who in 1890 consolidated several mills under the name of the New York and Pennsylvania Co. To this same company is due the introduction of the rotary kilns for burning the concentrated black liquor. A patent on this feature was taken out by L. Armstrong of the Company in 1892 (U. S. Patent 480,702), and patents were also taken out by S. D. Warren & Co. of Boston, Mass. The commercial problem was worked out by the two companies in collaboration, and the type of rotary then developed is still in general use in soda pulp mills. The organic material in the concentrated liquor is nearly sufficient to complete the evaporation and maintain the required amount of combustion. Some of the waste heat is used to generate steam in boilers set into the flues. No attempt is made in the present commercial practice to recover any valuable product but the alkali.

Our own interest in this subject has been in trying to recover methyl alcohol and acetone by destructive distillation of the black liquors. We have been assisted in this both in the laboratory study and in the tests on the larger scale by the New York and Pennsylvania Co., to whom we wish to express our thanks. Our acknowledgements are especially due to Mr. George K. Spence and Mr. John Krauss, chemists at the Clarion Mill, for their unfailing courtesy and assistance.

Theoretical

The process of destructive distillation of wood to produce methyl alcohol, acetic acid and charcoal is an old one. The question as to the constituents of the wood which produced these products has, however, had little study. Klason[1] has pointed out that the alcohol must come from the lignin, since the destructive distillation of cellulose gave no alcohol in his tests. We have in the main confirmed his results since the destructive distillation of soda pulp, which is not entirely free from lignin, gave in our tests only 0.06 per cent. by weight of methyl alcohol, while hard wood pulp chips gave 1.47 per cent. by weight. It is therefore evident that the material of the wood which produced the alcohol went into solution in the soda digester or was decomposed entirely and evolved as gas.

Indirect evidence is afforded by the tests of Bergstrom and Fagerlind,[2] who determined the amount of methyl alcohol evolved with the gases given off during a sulphate cook and found that 1.3 per cent. on the weight of the pulp, or perhaps 0.65 per cent. on the weight of the wood, was converted into alcohol during the cooking process.

The total methoxy groups in the wood as determined by digestion with strong hydriodic acid is frequently assumed to give the maximum amount of methyl alcohol which can be obtained from a given substance. Benedikt and Bamberger[3] tested wood in this way and obtained indicated maximum yields of methyl alcohol varying from 4.38 to 6.52 per cent. by weight of the wood, according to the species. This figure is so large that it is evident that there must still be possibilities for considerable alcohol recovery from the waste liquors. Streeb[4] showed that the methoxy content of the lignin acids precipitated from black liquors by mineral acids was between 5.78 and 5.98 per cent. Attempts were made by H. Lowe in 1861 and Tessie du Motay in 1871 to precipitate the organic matter by carbon dioxide to facilitate the recovery of the waste lyes, but their results were not commercially successful. Rinman[5] has patented a process similar to this involving precipitation of the humus matter by carbon dioxide of

[1] Ztr. f. angewandte Chem. 23, 1252-7, 1910.
[2] Papier fabr., 7, 27-32, 78-82, 104-6, 129-31 (1909); 8, 970-1.
[3] Monatshefte, 11, 260-7, 1890.
[4] Dissertation Göttingen, 1892.
[5] Papier Fabrikant 10, 39-41, 104-4, 1912; 12, 212-5, 1914.

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MAYNARD & SIMMONS

Atlanta, Ga.

stack gases and destructive distillation of the solid residues. Our own experiments have shown that lignin from hard wood precipitated in this way gives on destructive distillation 1.62 to 2.20 per cent by weight combined alcohol and acetone, which is only about two-thirds as much as an equivalent amount of highly concentrated black liquor gives when distilled under the same circumstances.

Laboratory Tests

Attempts to distill this concentrated black liquor by heating the full charge in a still such as might be used for tar gave much trouble. The liquor foamed badly and after the destructive distillation was started an exothermic reaction developed which caused a violent evolution of gases. The process of feeding the liquor gradually into an inclined preheated retort gave much better results. In this way successive films of the liquor were subjected to distillation at an even temperature. Not only could the temperature be controlled, but also the length of time which the vapors remained in the hot retort and the extent of the contact with the charcoal, which latter agent has been shown to have a powerful catalytic effect. Experiments showed that the best results were obtained at temperatures even lower than those usual in wood distillation, provided an adequate time was allowed. The temperature of 550-600°F. (288-316°C) seemed most desirable.

The laboratory retort used for these tests was made from a piece of gas pipe three inches in diameter and eighteen inches long which was set in an inclined position. The liquor entered continuously through a side arm at the middle of the retort and the gases left at the upper end. The results of a series of seven consecutive tests with this retort on liquor averaging 41.3°B. are given in Table I. The average result of the seven tests shows 3.81 per cent. by volume of methyl alcohol and 0.56 per cent. by volume of acetone in the aqueous distillate. Five of the tests are on liquors from hard wood, mostly beech, and two are from the soft wood, mainly basswood. It is noteworthy that this soft wood which, if distilled directly, would yield very little alcohol, gives fully as good results after the soda treatment as does the hard wood. Other tests on poplar and jack pine liquors have shown good yields of methyl alcohol although the conditions necessary for the best results have not been worked out.

In this series of Table I the rate of feeding was such that the vapors stayed in the retort from fifteen to thirty seconds. Under these circumstances the liquor as it entered the retort foamed and was charred almost immediately, so that the whole interior space of the retort became speedily filled with a very porous black ash which offered a very large amount of contact surface. In some tests the upper part of the retort was filled prior to the test with a wire basket containing black ash, to give more contact surface.

Table I

LABORATORY DISTILLATIONS OF BLACK LIQUOR FROM SODA PROCESS IN RETORT MADE FROM 3-INCH IRON PIPE.

Test No.	Sp. Gr. of Liquor in Degrees Be.	Kind of Wood.	Vol. Per Cent. of Aqueous Distillate.	Composition of Aqueous Distillate, Per Cent. by Volume. Methyl Alcohol.	Acetone.	Average Retort Temp. Degrees F.
5	40.4	Hard	66.0	4.03	0.45	513
6	40.4	Hard	61.0	3.64	0.48	548
7	40.4	Hard	67.0	3.48	0.67	596
8	41.0	Hard	65.4	3.47	0.69	573
9	41.0	Hard	67.5	3.73	0.53	567
10	43.0	Soft	67.6	4.27	0.67	567
11	43.0	Soft	64.0	4.06	0.66	615
Average..	41.3	....	65.5	3.81	0.56	....

This did not seem to be necessary at the higher temperatures but did give better results at the lower temperatures. Test Number 3 of this series was distilled at a temperature of 555°F., which was entirely satisfactory in other cases, but in this test the liquor was fed at a rapid rate so that the gases stayed in the retort only eight seconds, as against the fifteen or thirty seconds of the other tests. In this test the destructive distillation was complete, as shown by the well charred black ash, but the combination of low temperature and short time showed its effect in the large volume of distillate, (76.0 per cent. by volume) and the low yield of alcohol and acetone, which together amounted to only 1.96 per cent. by volume of the distillate, whereas the average of the other tests gave 4.37 per cent.

Large Scale Tests

It was evident from the laboratory tests that in order to obtain good yields of alcohol and acetone it was advisable to conduct the distillation rather slowly and at a temperature well below a red heat and not necessarily above 550°F. This temperature is no higher than that of the waste gases from many steam boilers and made it evident that steel could be safely used as the retort material. The greatest practical difficulty in transferring the process to a large scale came from the rubbery nature of the product during the initial stages of the treatment. Starting as a thick syrup at 40-42°B., it changes as the water is driven off to a mass which is sticky and plastic while hot and tough and hard while cold. It also foams strongly during the first stages of the destructive distillation.

The two previous experimenters who have recorded their work in this field have both emphasized the difficulties in handling this material. Meyer[6] proposes to absorb the thick syrup in briquettes of charcoal previous to the distillation, and Sandberg[7] uses a combination of mechanical scrapers and screw conveyors to work the material through the retorts. The authors have found it preferable to allow the liquid to flow as a film over the inside of the retort and build up an increasing thickness of charcoal, and then discharge the retort altogether and start afresh.

Both vertical and inclined retorts have been tested. The vertical retort was rectangular, 12 by 18 inches in cross section and 10 feet in height above the grate bars. The top was closed by a lid in a liquor seal that also served as the means of introducing the liquor which trickled over the edge of the retort and ran down the sides, charring as it went. It was found, however, that the liquor ran down the hot sides of the retort so rapidly that it reached the bottom while still liquid and collected in a pool at the bottom of the retort. The catalytic effect of the carbon was also much less in this large retort than in the laboratory retort, so that the best results were obtained when the vapors stayed in the retort 75 seconds instead of the 15 to 30 seconds necessary with the smaller retort. Even under these conditions the yields were only about 60 per cent. as much as those with the smaller retort.

The next attempt was to use an inclined retort which was merely the laboratory retort on an enlarged scale. After preliminary tests to determine the proper angle a battery of twenty-four retorts was constructed. Each retort was made from steel well casing 9.6 inches in diameter and 12 feet long set with the upper end three feet higher than the lower. This bench was operated twenty-four hours a day for three weeks without any serious operating troubles. The black ash was well charred and leached to a colorless solution, leaving a soft and porous charcoal. There was absolutely no volatilization of soda ash from the retorts, showing that the loss of soda from the rotaries could be entirely eliminated. The doors of the retorts were not properly made and could not be closed tightly. If suction was kept on the retort air leaked in and destroyed some of the pro-

[6] U. S. P. 407, 442, July 23, 1889.
[7] British patent 24, 125 of 1912.

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ducts. If there was back pressure on the retorts the gases leaked out and some of the distillate was lost. An inadequate condenser also caused loss. Because of these defective details the average results were lower than they should have been.

For short periods of time as good results could be obtained as on the laboratory scale but, as the average of a day's run, the strongest distillate obtained was when 439 gallons of 40.1°Be. liquor from bass wood were distilled and gave a distillate containing 2.75 per cent. by volume of methyl alcohol and 0.46 per cent. acetone, which is about seventy-five per cent. of the strength obtained on the laboratory scale. There does not seem any rason to doubt that, with leaks eliminated, this apparatus could give results in every way as goods as those obtained in the laboratory. The capacity of this plant was one gallon of concentrated liquor per retort per hour, or 576 gallons per day of twenty-four hours for the unit installed. It was an experimental plant with the feeding of the liquor and discharge of the black ash controlled by hand, which made the labor cost altogether too high for commercial operation. The chief problem still remaining is that of designing efficient machines for replacing hand labor in these operations.

In this particular installation natural gas was burned, but tests for several successive days showed that the black ash as it came from the retort could be completely burned on grates below the retorts, fused white soda ash dripping through the grate and collecting as stalagmites in the pit below. This procedure is not, however, wholly advantageous, since there is loss of soda mechanically carried off with the smoke gases just as there is from the rotaries. Better practice would involve leaching the black ash as usual and then burning the leached wet carbon in gas producers or after drying by waste heat, burning it directly on grates or in the form of powdered fuel.

The yields to be obtained from the destructive distillation are shown in Table II calculated to a basis of 1000 gallons of 40° liquor and also to a basis of a cord of wood. The figures given are really for hard wood, but the yields from soft wood per 1,000 gallons of black liquor are practically the same and the yields per cord of soft wood need to be corrected only for the difference in the weight per cord to make them approximately accurate. The yields of methyl alcohol and acetone are all based on analyses of the distillates, since no refining tests on the large scale have been made. No difficultis in the refining process, however, have been indicated by the laboratory distillations. The distillate contains no acid and therefore iron condensers and stills may everywhere replace the more expensive copper. Neither is there any need of the expensive first distillation of the entire liquor which the wood distillers must make to separate the acetic acid from the tar. The liquor as it comes from the tar separating tanks is practically in the same stage as that from the wood distillation after the first distillation has been completed and the acetic acid has been neutralized.

Table II

YIELDS FROM DESTRUCTIVE DISTILLATION OF CONCENTRATED BLACK LIQUORS FROM SODA PULP PROCESS.

Composition of black liquors of 40° Be.:

	Percentage by Weight.	Pounds Per 1,000 Gals.
Water	31.7	3,640
Organic matter	40.0	4,600
Ash	28.3	3,260
	100.0	11,500

Yields from 1,000 gallons black liquor of 40° Be.:

	Percentage by Weight.	Pounds.	Gallons.
Aqueous distillate	41.6	4,790	575
Tar	5.6	650	71
Black ash	44.5	5,120	...
Gas (by diff.)	8.3	940	...
	100.0	11,500	...

Carbon after leaching black ash 2,100.

Black ash composition:

	From Hard Wood, Per Cent.	From Soft Wood, Per Cent.
Combustible	41.3	44.3
Ash	58.7	55.7

Aqueous distillate:

	Percentage Composition.	Yield from 1,000 Gals. 40° Liquor. Pounds.	Gallons.
Methyl alcohol	3.81 by vol.	145.0	21.9
Acetone	0.56 by vol.	21.6	3.2
Ammonia ($as NH_3$)	0.04 by wt.	4.6	...

Yields per cord of wood put into digester:

Based on 850 pounds of soda ash per cord of wood weighing when chipped 4,100 pounds; 850 pounds of soda ash are found in 273 gallons of 40° liquor.

273 gals. 40° liquor yield 157 gals. aqueous distillate, containing: 6.0 gals. methyl alcohol 100 per cent.; .9 gals. acetone. — 6.9 gals. alcohol and acetone.

Tar

The tar forms about eleven per cent. by volume of the total distillate from hard wood. It has a specific gravity of 1.10 and a pungent odor entirely different from that of either wood tar or coal tar. On distillation, according to the method of Church,[5] it gave the following results:

Water	8.6	per cent.
Oils below 100°C.	1.7	" "
Oils 100-205°C.	5.4	" "
Oils 205-270°C.	47.3	" "
Soft Pitch	35.9	" "
Total	98.9	" "

It contains nearly 50 per cent. of distillable phenols, the fraction from 205-270°C. being composed of phenols to the extent of 80 per cent. On mixing with formaldehyde and an alkali, this fraction polymerises to a plastic substance even in the cold and on heating it yields a solid body. The tar is an interesting material, but its value is as yet entirely unproven.

Alcohol in Steam from Soda Digesters

A small pipe with a condenser was connected to the relief line from one of the digesters and a portion of the stem allowed to blow off during the cook, was condensed and tested for alcohol and acetone, with the following results:

Composition of Condensate from Soda Digester.

A—Using Hard Wood.

Steam on at 11:30 A. M.

Up to 115 lbs. pressure and relief valve opened at 1:15 P. M.

[5] Jour. Ind. and Eng. Chem., 3, 227-233, 1911; 5, 195-6, 1913.

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Hourly Sample	Per cent. by Volume Methyl Alcohol	Acetone	Per cent. by Weight Ammonia (NH_3)
1	1.00	0.02	
2	1.48	0.06	
3	1.43	0.07	
4	1.37	0.07	
5	1.35	0.09	
Average.....	1.32	0.06	0.06

B—Using Bass Wood.

Steam on at 6:50 A. M.
Relief valve opened at 8:40 A. M.

Hourly Sample	Per cent. by Volume Methyl Alcohol	Acetone	Per cent. by Weight Ammonia (NH_3)
1	0.62	0.03	0.026
2	0.80	0.04	0.026
3	0.44	0.04	0.023
2	0.59	0.04	0.021
Average.....	0.61	0.04	0.024

It was not feasible to measure the steam given off from each digester, but it was estimated at 145 gallons per digester. This would indicate a loss of about two gallons of alcohol and acetone from each digester of hard wood and about half that from each digester of bass wood. It did not seem feasible to condense any of the steam from the charge as it was dumped, but that given off immediately after the digester was discharged would undoubtedly have contained as much alcohol as that from the last sample during the cook. The amount of ammonia formed (0.06 per cent.) is small but interesting. The values indicated here are too small to warrant recovery in an independent plant, but would probably be worth recovering as a side issue in a plant equipped for destructive distillation of the black liquors.

Cost of Operation and Returns

The process discussed here merely replaces the rotary calciners by suitable retorts operating at temperatures well below a red heat. The multiple effect evaporators before the process and the leaches after the process need not be changed. The question concerns the cost of installation and operation of the retorts, condensers, etc., as compared with the rotary calciners. No fuel need be purchased to heat the retort since the carbon from the black ash will provide the necessary heat. One thousand gallons of 40° black liquor contain only 3,640 pounds of water and yield 2,100 pounds of carbon after leaching, which is in the ratio of 1.74 pounds of water per pound of carbon. The destructive distillation evolves heat so that the only work which the fuel has to perform is to heat the material to 600°F. and to vaporize the water. The temperature of the stack gases is as low as that of the average steam boiler, and on a basis of steam boiler performance one-half of the carbon should be sufficient to heat the retorts and supply sufficient waste heat to dry the leached carbon in waste heat driers. It is therefore conservative to assume that if the carbon is not more valuable for other purposes it will be sufficient to cover all fuel requirements of the plant.

The absence of acid from the distillate makes it unnecessary to use copper in the condensers or stills and also eliminates the necessity for the complete distillation with high pressure steam or in vacuum to separate the acetic acid from the tar. The steam requirements are therefore much lower than in a wood distillation plant. The chief difficulty remaining in the commercial development of the process is that of developing proper mechanical devices for opening and closing the retorts and for pushing the contents. Since a plant must be composed of large numbers of small units, one man must be able to operate a machine handling a number of retorts simultaneously.

The estimated cost of operation and the returns from a by-product plant of this type are tabulated in Table III. The methyl alcohol and acetone figures are taken from the analytical data as 100 per cent. strength, and in the absence of actual data on refining losses 5 per cent. loss has been assumed, and a further allowance made by not giving to the acetone a higher price than the methyl alcohol. The prices used in the table are those prevailing before the war. The carbon remaining after leaching the black ash is assumed merely to serve as fuel for the plant, although it has been shown to be saleable as a paint pigment and has interested the manufacturers of black gunpowder. No value at all has been assigned to the gases or the tar which would serve as fuel if it could not be more advantageously utilized. The estimated saving of 5 per cent. of the total soda ash in circulation is believed to be conservative, as is also the saving of labor, fuel, repairs, and depreciation on the present type of rotary kiln plant for calcining the black liquor.

Summary

It has been shown both by laboratory tests and by larger mill tests that the concentrated black liquors from the soda pulp process may be subjected to destructive distillation so as to yield 6.9 gallons of alcohol and acetone per cord of wood placed in the digester. The yield from a soft wood such as bass is as good as that from a hard wood such as beech. The only variation from the present process consists in replacing the rotary calciners by retorts in which the liquor is distilled at a temperature of about 600°F. If a 40°Be. liquor is used the distillate contains about 4.4 per cent. by volume of alcohol and acetone, no acid, and about 11.2 per cent. by volume of tar which contains nearly 50 per cent. of phenols. The black ash leaches readily to a clear liquid and the recovered carbon is sufficient to provide the necessary fuel for the whole by-product plant. The by-product plant will effect an additional economy by preventing the present loss of soda which is carried as dust up the stack from the rotary calciners. The net saving by the introduction of a by-product plant is estimated, as shown in Table III., to be $1.86 per cord of wood cooked in the digester.

Table III

ESTIMATED COST OF OPERATION AND RETURNS FROM BY-PRODUCT PLANT BASED ON ONE CORD OF WOOD COOKED IN SODA DIGESTER.

To be Credited to By-product Plant per Cord of Wood:		
6.9 gallons 95% methyl alcohol and acetone at $.40		$2.76
44.5 lbs. soda ash (5% of total now lost in stack gases)	0.44	
57.0 lbs. carbon counted here only as fuel saved by elimination of present rotary kilns	0.67	
		$3.87
To be charged against the By-product Plant per Cord of Wood:		
Cost of plant estimated at $1,170 for each cord per day:		
Labor	$0.80	
Steam and power	0.35	
Superintendence, supplies, and taxes	0.20	
Repairs at 10 per cent. of cost of plant	0.33	
Depreciation at 10 per cent. of cost of plant	0.33	2.01
Balance in favor of By-product Plant per Cord of Wood		$1.86

Amendments to the articles of incorporation of the A. E. Sielaff Paper Company of Milwaukee, Wis., have been filed. They provide for an increase of the capital stock of the company from $25,000 to $50,000—fully paid up.

The increased capital was required to adequately take care of the steadily growing business of the company. There was no change in officers, nor stockholders at the last annual election and the entire new issue of stock was taken and paid for by the old stockholders.

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CARTHAGE,
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Bleaching of Groundwood Pulp

Bleached Groundwood Is Not Raw Material of Recent Origin, but Has Been Used in European Paper Mills Quite Extensively for Many Years—What Determines Extent to Which Bleached Groundwood May Be Applied in Certain Stock Combinations Are Color and Fineness of Fiber.

Paper Read at Technical Section by Otto Schutz, Color Expert

Bleached groundwood is by no means a raw material of recent origin, for it has been used in European paper mills quite extensively for many years, and the reason why such a limited advantage is taken of it by mills of this continent, seems to lie in the prejudice of the paper consumer against this product.

Color and Fineness of Fibre

The important factors which determine to what extent bleached groundwood may be applied in certain stock combinations, are color and fineness of the fibre. The white color of the fibre is produced by bleaching groundwood pulp with bisulphite of sodium. This has proven to be the most stable chemical compound suitable for this purpose.

One of the best processes for bleaching groundwood is the one

Otto Schutz.

described in E. Kirchners' treatise "The Manufacture of Groundwood." (Die Holzstoff-Fabrikation, year 1912). The method referred to was worked out by Fr. Blum, Dresden-Planen, D.R.P. No. 316324.

Technic of the Process

The technic of the process is as follows:

The top press roll of a wet machine is equipped with two small rolls, each arranged on top of the other in such a way that the two small rolls may easily be moved up or down. Both of these rolls are covered with felt.

Above the upper roll a specially constructed lead spray pipe is adjusted, for the purpose of distributing the chemical bleaching solution evenly along the upper roll.

By means of this arrangement, the bleaching solution is transmitted through the lead pipe to the upper small roll, whence it passes to the lower small roll and from there to the groundwood sheet, which is winding up on the top press roll of the wet machine.

The aforementioned lead pipe has one great drawback, i. e., that the fine openings close up after the pipe has been in use for a few hours, which results in an uneven application of the chemical solution.

Experience has demonstrated that manipulations to clean or open the five holes lead to waste of the solution as well as to a streaky pulp.

In order to overcome these troubles a distribution box was specially constructed for this purpose (Schutz's U. S. pat. No. 1,208,670), so as to provide for a uniform application of the bleaching solution in definite quantity.

Most Effective Agent for Groundwood

The most effective bleaching agent for the treatment of groundwood is bisulphite of sodium. Used in proportions of 2-3 per cent. it will be found to produce a good color, though the color is never so bright as that of a perfectly bleached chemical pulp.

Not all kinds of wood are equally suitable for bleaching and practical trials have shown that groundwood from poplar or white spruce bleaches best; hemlock and tamarack not being so well suited for this purpose.

The bleaching process with bisulphite proceeds with comparative slowness, and it is essential to allow the bleaching agent sufficient time to transform the lignin substance into a new colorless compound.

Either for the reason that this newly-formed colorless lignin compound remains in the pulp even after the pulp has been transformed into paper, or for the reason that the interaction between bleaching agent and lignin never is completed—for either one or the other of these reasons the bleached groundwood will develop the reactions with certain chemicals that are characteristic of unbleached groundwood, i. e., phloroglucinol will produce on bleached groundwood a deep red stain, aniline sulphate, a deep yellow stain, etc.

Groundwood Easily Detected

These reactions show that the bleaching process does not disguise the groundwood in the paper to such an extent that it can not be easily detected even by simple tests.

Nevertheless bleached groundwood has proven to be a welcome material, not only on account of its cheapness, but particularly by reason of its suitability for light weight papers, where opacity in the paper is desirable.

High opacity in a paper can be obtained by using a high percentage of filler. This tends, however, to affect the tensile strength of the paper disadvantageously, whereas bleached groundwood will increase the opacity without decreasing the tensil strength to the same extent as a filler would, and excellent results can be produced by using both materials together, filler as well as bleached groundwood in proper proportions, whereby the color is not impaired to any great extent.

It is a well known fact that some papers, which contain a high percentage of clay or filler, show a difference in the printing qualities between wire side and felt side of the sheet, this being the more noticeable according to the freeness of the stock. The

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Construction and Equipment for Sulphite Fibre Mills

WATERTOWN, NEW YORK, U.S.A.

difference can be overcome, to a considerable extent, by replacing part of the filler with bleached groundwood.

Quantity of Stock and Fineness of Fibre

Regarding the fineness of the bleached groundwood fibre there is this to say, that the finer the fibre the higher a percentage of this material can be used in the stock combination.

Dull stones and a high pressure will produce a satisfactory fibre for most papers for which bleached groundwood may be used.

The fibre obtained in the aforesaid way will be fine and somewhat short, and it will make a good formation of the sheet. Of course, production per stone will be sacrificed for quality in this case, but not to too great an extent.

Bleached groundwood, if prepared properly, is not only a good material for cheap magazine paper and light weight catalogue paper, it will even form a good sheet of tissue paper in connection with other fibres.

In the Saybuscher Papierfabrik Galicia—a mill having a reputation for its India paper, tissue paper and other light weight specialties—I have manufactured a good grade of tissue paper of about 7 lbs. 20x30-480 sheets with bleached groundwood. For a paper of this kind a particularly high grade of bleached groundwood had to be provided on account of the light weight of the paper, which was run on a regular fourdrinier machine; the stock combination consisted of the following furnish: 30 per cent. bleached ragstock; 30 per cent. bleached sulphite pulp; 40 per cent. bleached groundwood.

This paper was shipped in large quantities to the Balkan States and to the Orient.

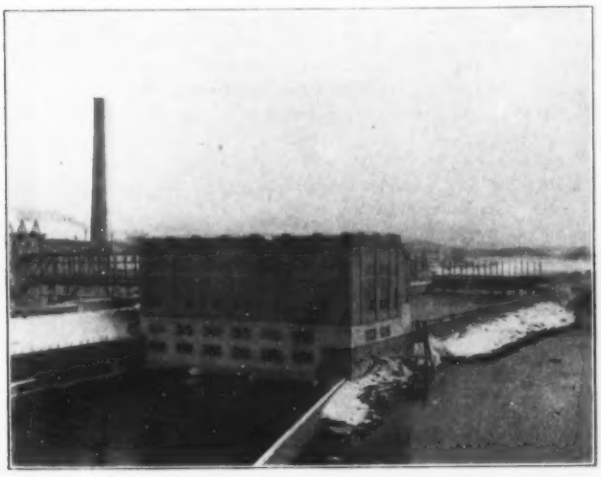
The war has opened to the United States a foreign trade, which was formerly held exclusively by European manufacturers, and now it may occur that samples of paper, made with bleached groundwood, are reaching American papermakers more frequently from foreign countries, with a view of getting supplies here.

OSWEGO FALLS PULP & PAPER CO. MAKES BIG IMPROVEMENTS

Written Specially for the Annual Number of the Paper Trade Journal

The Oswego Falls Pulp & Paper Company was organized in 1886. The plant is located in Fulton, N. Y., at a point on the Oswego River where the natural descent of water forms the historic Oswego Falls. The Oswego is one of the storied rivers of America. As early as 1654 the Jesuit explorer and missionary, Simon LeMoyne, writes often of the great falls of the Oswego and the carrying place on the east bank. After settlements sprang up in the new country and during the American Revolution, the Oswego was the great westward route from the Hudson via the Mohawk River. Where the Indians had their camping ground at the portage near the falls, fortifications were erected by the British Colonists, and, in 1756, upon the site of the present paper mill, Colonel Bradstreet constructed a large stockade fort to defend the pass against the French. It was fitting that James Fennimore Cooper should introduce "Pathfinder" a few miles above the Oswego Falls and place some of the stirring incidents of that tale at the portage itself.

The property was formerly owned by the State of New York, which had developed the same by the erection of a wing dam and several mills which were leased for operation. In 1829 the State sold all of its rights to the mill property and water power to Jonathan Wheet and James Doolittle. The various mills manufacturing lumber, plaster, flour, etc., were operated on this site until 1886, when the property was purchased by the present owners.



EXTERIOR OF NEW POWER HOUSE.

The pulp mill was erected in 1888-9. In 1888-9 the present paper mill was constructed, having one 135" Fourdrinier machine and one 102" five cylinder machine, both of which were the most modern and substantial kind that could be obtained.

Early in the spring of 1915 ground was broken for the new pulp mill of the Oswego Falls Pulp & Paper Company. It was decided to build the mill on the lot at the south of the paper mill. The old pulp mill, which the new one was to replace, was located on the east side of the river, directly back of the paper mill and between the Oswego River and the State Barge Canal. Where this old, out of date, pulp mill stood was erected the new hydro-electric plant.

New Pulp Mill Modern in Every Respect

The new pulp mill is modern in every respect. It is built on concrete foundations and the walls are brick, while the roof is concrete. The grinding room is equipped with eight Sandy Hill, three pocket grinders, capable of turning out seventy tons of ground wood every twenty-four hours. These grinders are set up in tandem and direct connected to 1,000 horse-power synchronous motors. The spruce wood for the grinders is received from the yard by a conveyor which conveys the wood to a storage bin over the grinders. This bin will hold about fifty-five to sixty cords of two-foot wood. Two hoppers in the bottom of the bin deliver the wood to the floor, within a few feet of the grinders.

The wood, after it has been ground, flows to a large tank under the main floor. In flowing to this tank the stock passes through a scalping screen, from where it is pumped to a receiving box located well above the screens. There are three Improved Paper Company's centrifugal screens located on a gallery which is about six feet above the main floor and is the whole length of the wet machine room. The good stock from these screens runs into a trough which supplies the wet machines and deckers. The rejected stock from the screens is pumped to two knotters of the same make, located on the gallery as the screens. The good stock

from the machines runs into the trough with the stock from the screens. The refused stock from the knotters run by gravity to a Howard refiner that is located on the main floor at the end of the gallery. All the stock that passes through the refiner flows to the tank that the original stock goes into.

Wet Machine Room Equipment

The wet machine room is equipped with two ten-ton Sandy Hill wet machines, two ten-ton Sandy Hill combination wet machines and deckers and two Sandy Hill double deckers, each good for twenty tons. In front of the wet machines there is a storage space large enough for two carloads of ground wood pulp, so that the pulp only has to be taken out every twenty-four hours. The stock from the deckers drops into four large storage tanks underneath the main floor. The stock from these tanks is pumped by a large triplex pump to a large reinforced concrete tank located in the paper mill. The stock from this tank runs by gravity to the various beaters.

Adjoining the wet machine room is a large storehouse. This building is of steel structure, the sides of which are covered with galvanized iron and the roof is concrete. The storehouse is used to store ground wood during the high water season. The pulp is delivered to this building by a large belt conveyor which starts in front of the wet machines and runs the full length of the storehouse. At the extreme end of the storehouse this conveyor joins another conveyor which delivers the pulp to the stock room in the paper mill when it is so desired.

Joining the paper mill with the pulp mill is a tunnel which is used by the employees to get from one mill to the other during the winter and stormy weather. On one side of this tunnel the pipes which supply the pulp mill with water and steam are carried and the large pipe which carries the stock from the pulp mill to the paper mill.

The electrical power for the pulp mill is supplied from the new 6,600 horse-power hydro-electric plant located where the original pulp mill stood. This new plant supplies the electrical power required in the paper mill as well as all the power distributed by the Fulton Light, Heat & Power Company in the city of Fulton and the surrounding territory.

Electrical Plant Equipment

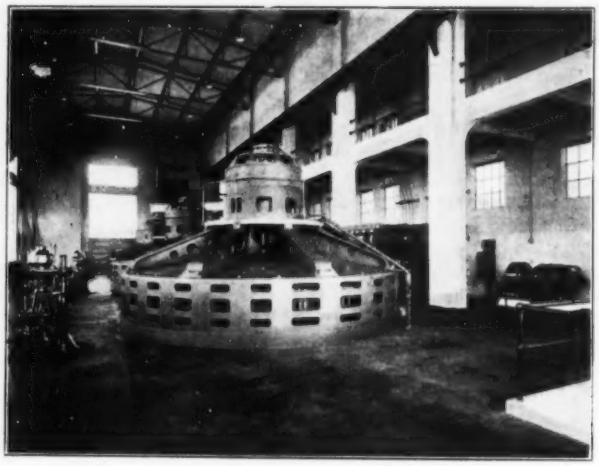
The equipment of the plant consists of three 1875 KVA general electric "umbrella" type generators, each direct connected to one Wellman-Seaver-Morgan Company's 2,200 horse-power turbine. The governors used with these water wheels are of the Lombard Governor Company's manufacture of a type recently developed by them and operate on the so-called system.

The power house itself is a large brick structure with concrete foundations and a concrete roof; it is fireproof in every way. Along the south side of the main room is a large gallery on which are located the lightning arresters and also the oil tanks supplying the thrust bearing of the generators.

On the main floor are the generators, governors and switchboard. The rotating part of the generators, as well as the water wheels amounting to some 65 tons—including the thrust of the water wheels, is supported by thrust bearings on the top of each generator. This bearing is of the spring type manufactured by the General Electric Company and is the same type in a general way as the well-known Kingsbury bearing, except that in case of the wedges and jacks in this bearing, the bearing plates of this spring bearing are supported by springs.

Each generator has its own individual exciter direct connected, immediately above the thrust bearing and these exciters are not operated in parallel as in most plants, but each machine has its own Terriel regulator and each is operated independently of the others.

On the basement floor are located the pumps for pumping the oil under pressure through the governor system as well as circulating the oil used in lubricating the thrust bearings. There is



INTERIOR OF NEW POWER HOUSE.

also a storeroom provided for the electrical supplies and a Kingsford turbine pump for supplying the water to lubricate the lignum vitae guide bearings on each water wheel. There is also a strainer for straining this water. The field rheostats and exciter rheostats are also located on this floor. Stairs cast in the concrete lead from this floor to the operating decks of the water wheels and here all the gate mechanism is exposed, so that same is readily inspected and properly lubricated. Directly below this floor are the large concrete foundations and on these foundations cast in the concrete are the intakes and scroll cases for the wheels as well as the draft tube, all designed to give the very highest possible efficiency.

Serving the main floor and in the generator room proper of the power house is a 30-ton crane which will handle with ease any single piece of machinery in the plant. This is of great assistance in making repairs.

An unusual feature in this plant is a gate hoist room directly south of the main power house and joined with the main building. This is built over the forebay and it houses the gates and gate hoists manufactured by the Dilts Machine Works and protects them from the weather.

Thoroughly Up-to-date Plant

The plant as a whole is thoroughly up to date in every way and is built to give the best efficiency possible. The wheels are operating under a head of 17 8/10 feet and have a normal horsepower rating of 2,200, which makes the total normal capacity of the plant 6,600 horse-power, and this has been exceeded, as much as 7,500 electrical horse-power being carried on the busses of the plant at various times when operating under the above head.

The Oswego Falls Pulp & Paper Company enjoys the distinction of having an all-water communication with Canadian sources of raw material by the St. Lawrence River, Lake Ontario and Oswego Barge Canal route, and ships its finished product by the New York Central and New York, Ontario & Western railroads, both of which have sidings at the shipping room of the mill.

WRAY PAPER CO.'S FOURTH BIRTHDAY

The Douglas Wray Paper Company, Chicago, has just completed the fourth year of its business During the past two weeks the work of stock taking and inventory has gone ahead rapidly, and the month of January shows a substantial increase. Demand for seconds is steady and prices are firm. The Douglas Wray Paper Company is one of the largest concerns in the West handling strictly high-grade seconds.

Because of a direct contact--a personal service--what Writing Papers are most frequently specified by large Corporations, Business Houses, Banks, etc.?

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WANG .....(Striped)
CONFECTIONERY .....(White)

SQUARE

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PREMIER .....(Brown)
TRANSIT .....(White)
WANG .....(Striped)
CONFECTIONERY .....(White)

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CONFECTIONERY .....(White)

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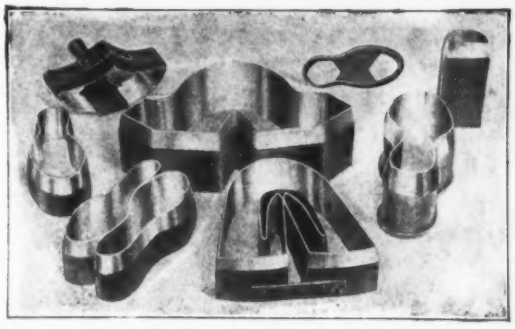

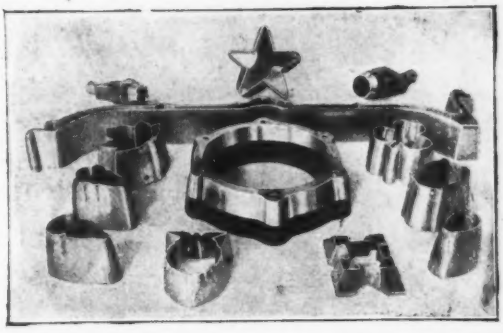

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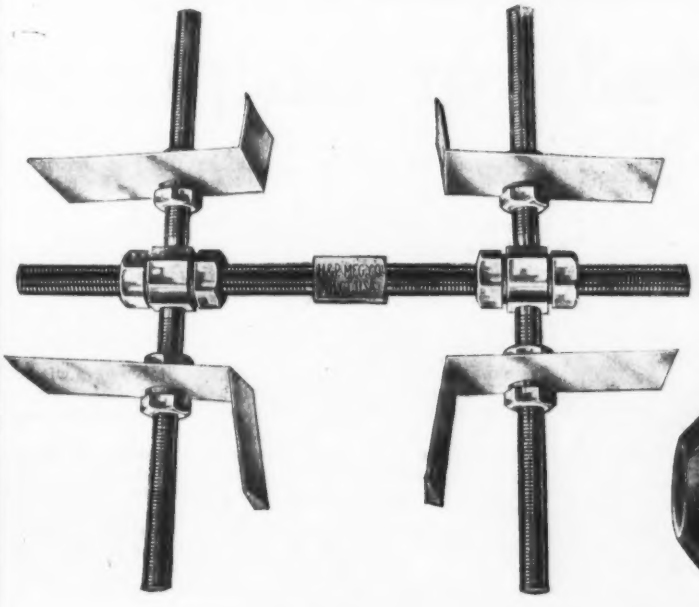

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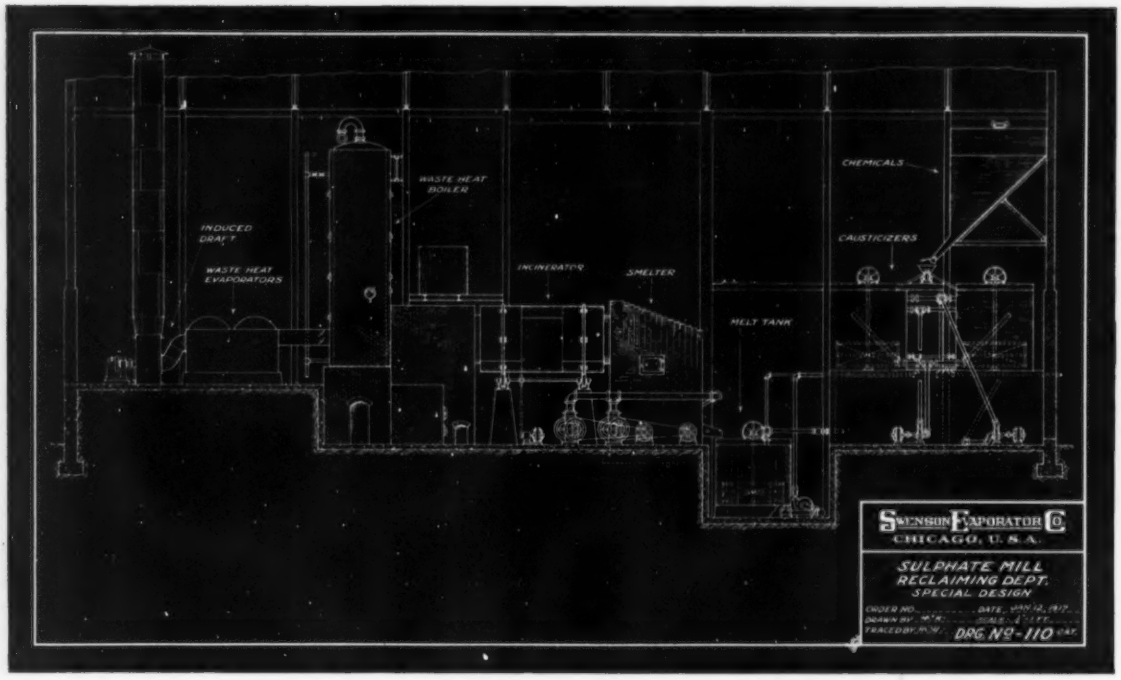
We shall be pleased to furnish prices for any style of dies on receipt of paper patterns. Please state whether they are to be used under a machine or with a mallet.

THE HOGGSON & PETTIS MFG CO.

NEW HAVEN, CONN., U. S. A.



Soda or Sulphate

Clouds of Mystery

More than once European Specialists have been imported to America to install some "secret" method of manufacturing pulp. These "secrets" have been religiously guarded and it has been harder to get into these holy of holy plants than to enter the German Empire during the present war, or the sacred cities of Afghanistan. But a close scrutiny of the financial statements of these consecrated companies year after year has failed to reveal any justifiable precaution.

In fact we have particularly in mind one very expensive lay-out that under the hammer diagnosed "secrets" in the construction end rather than in method of manufacture. Even one of our erstwhile captains of industry had folded his hands in worship to this halo of mystery that inevitably proved to be merely a cloud—and without a silver lining.

American and Canadian manufacturers have found it impossible to import European methods and their detailed design of plants in their entirety for use on this side of the water and achieve commercial success. We have found them entirely unsatisfactory for many reasons—some of which it has taken us many years to discover.

Why Some Mills Fail

An equipment may be manufactured of the best and most costly material in the world and by the most expert workmen, BUT, unless the engineering principles are correct your plant will spell f-a-i-l-u-r-e.

We believe the success of the plants we have installed has been due to our intimate experience in this particular line and our persistent attention to detail in executing specifications. Our machinery is coming more and more into favor with those best informed on pulp and paper production.

Perhaps our greatest success has been where we have furnished complete plants. In this way we have secured a general co-ordination and balance difficult to obtain in an outfit assembled from several sources.

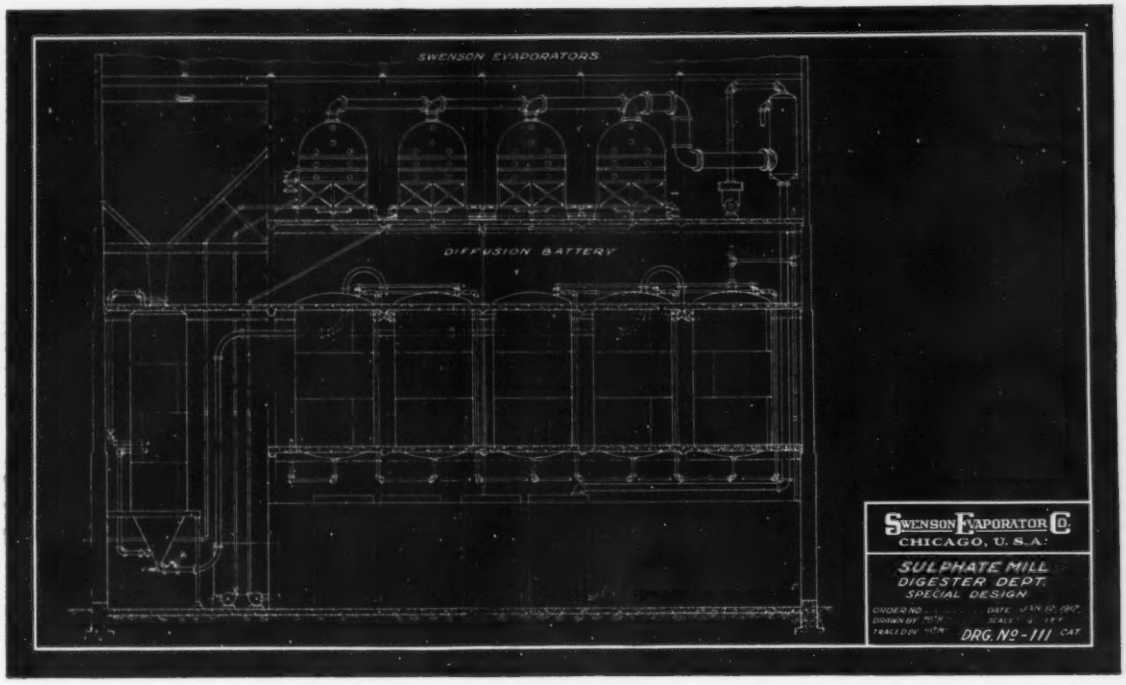
Profits for the Newer Mills

The newer mills in Canada and the United States have wisely adapted the principle of the multiple effect evaporator which is fundamentally the same as in the case of the numerous soda pulp plants.

In these newer mills, which are the first ones making good profits, the hot gases from the melting and burning of the black ash are led through a properly designed waste heat boiler and from an outlet flue of the boiler, they pass thru an open evaporator of the type used in Europe. Besides the great economy resulting from this clever arrangement it also does away with obnoxious odors. This is only one of the many unique features developed through American ingenuity that is piling up the profits for the fortunate owners.

By these improved methods there is being accomplished the elimination of "firing up," the resultant use of extra fuel to help out, a saving in wear and tear on machinery, a more complete washing of pulp, the elimination of the smell of sulphide, increasing the percentage recovery, cutting the cost of fuel, decreasing the cost of labor (including the wages of the

Chicago **SWENSON EVAPORATOR CO.** Over A QUARTER CENTURY OF REPEAT ORDERS



Reclaiming Plants

operator), preventing shut downs by making all machinery fool proof and capable of steady operation day in and day out, year after year.

Swenson Multiple-Effects

The Swenson Evaporator was first built over a quarter of a century ago and has been on the market ever since. It has been put to a wide variety of uses including the recovery of wood pulp lyes. It has been extremely successful in handling this ordinarily difficult problem. This is due to the care taken in changing the construction and proportioning of the pans to give the best results. It has gradually become the Recognized Standard and we believe this popularity is due to the ease and quickness with which the apparatus itself can be erected, operated and kept clean. In a word it is the simplicity of the apparatus which recommends it for recovery of Soda or Sulphate or concentration of waste Sulphite Liquor.

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We make the vertical digesters with cone or dished bottoms, screens and circulation device. We also make the rotary, or tipping digesters, with double cone ends and steam trunnions. The workmanship and material on these is absolutely guaranteed and is of the highest quality.

Pulp Diffusers—

Black-Ash Leaching Batteries

The use of the principle of systematic lixiviation in closed pressure vessels is recommended for both the washing of pulp when the wash liquors are to be evaporated, and for the dissolving of black ash in soda mills. These are all closed vessels and operated under pressure. The piping is connected in such way as to have the strong solution issuing from the vessel most recently charged. The water for washing or dissolving is pumped first into the vessel most exhausted of alkali.

The Diffusers are heavy butt riveted tanks with large valves at the top for the admission of pulp, and bottom side discharge doors on the level with the false bottom. By the use of these diffusers the pulp can be washed cleaner and with less fresh water than in the old system of open wash pits.

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Wausau Sulphate Fiber Co.	Mosinee, Wis.
Central Paper Co.	Muskegon, Mich.
New Brunswick Pulp & Paper Co.	Millerton, N. B.
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Cotton Rope for Power Transmission

Some Features of the Practices in the Use of Power Rope Transmission in England and America Compared—Rope Driving May Be Divided Into Two Leading Systems, One Known as the Continuous or American, and the Other the Multiple or English.

Paper Read at Technical Section by J. Melville Alison

The following paper on cotton rope for power transmission, illustrated by lantern slides, was read by J. Melville Alison, of William Kenyon & Sons, Dukinfield, near Manchester, England.

Initially I am indebted to one or two of the members of the Technical Association of the Pulp and Paper Industry, at whose suggestion it was that the subject of power transmission by cotton ropes should be ventilated to you here in conference. The subject matter of transmission is given, so far as I can ascertain, much closer technical and practical attention and consideration in England than it has hitherto been given on this side, I mean from the rope makers' standpoint. My particular issue, however, is to engage your interest, first, in the rope drive, and, second, in cotton as material for ropes for power purposes as against manila or any other material, and, further, in a scientifically constructed rope for this special application.

Practice in England and America

There are outstanding features in comparing the practice in England and in America in this matter, which prominently are:

1. Cotton has entirely supplanted any other material for rope driving in England. Manila is of the dim and distant past.
2. The rope maker is consulted as to plant layouts, speeds, sheave diameters, centres, grooving, etc., and his opinion is deferred to.
3. Guarantees of maintenance are required and given in almost all installations.
4. The manila and steel rope manufacturers employ cotton ropes for transmitting their power.

The Main Argument

My main argument, therefore, might be that, while it is admitted on this side that the rope drive originally was culled from English practise, the engineering faculty here has not come along astride with us.

It is necessary for me to satisfy you at the outset why cotton should dominate other materials. *Longevity* and a *higher factor* of *efficiency* need be my assurance to you. The longest life we have is of ropes installed in September, 1878, and are still doing service, but it is common to find cotton ropes doing night and day duty for periods of twenty years and over. A higher initial cost is readily overlooked.

In England, possibly, the rope drive is utilized much more freely than in America, but, on the other hand, the installations here are, in many instances, much larger than with us. It is difficult to comprehend why cotton ropes have not been more freely adopted in this progressive country when we consider England is daily exporting large consignments to all other parts of the world.

In Canada many cases could be quoted of firms who, after experimenting, as it appeared to them, by replacing manila with cotton ropes, have continued to employ the latter irrespective of the higher initial cost.

Various Features of Rope Drives

I shall now endeavor to particularize on various features of rope driving.

Firstly, we have the rope drive against belts or spur gearing.

Belts are dependent upon a frictional grip, over a flat or slightly convex surface, and are, therefore, readily influenced by centrifugal force. There is also the resistance from the air cushion formed by the meeting of the two surfaces under compression. This must be squeezed out either sideways or through perforation with the pulley rims.

Ropes, on the other hand, are impacted into grooves so constructed that while a firm hold is maintained, the grooves are not entirely filled with the rope, and the air passes freely along the aperture at the bottom. The efficiency is largely in favor of the rope.

Good cotton ropes may usually be purchased at about one-third of the price of leather belting to transmit an equal horsepower, which, even if splicing be included, provides a considerable margin to go against the extra cost of grooved sheaves.

Against gears, where the load is a fluctuating one, such as in rolling mill practice, we have the elasticity or resilience of ropes to relieve the engine of the shocks and stresses set up by the sudden extering and releasing of the load, and if anything has to suffer, it is much cheaper to replace a rope or two than the expensive gears.

Continuous vs. Multiple Rope Driving

Rope driving may be divided into two leading systems, one known as the continuous or American and the other the multiple or English.

In attempting to fix upon comparisons, which need not be odious, I am aware that I am trenching upon a phase of the question which, if it has not been reduced to an exact science in this country, has, in an endeavor to accommodate all circumstances and conditions, been pushed almost to the extreme limits of practical mechanics.

One cannot, however, view any of the many examples open to inspection without feelings of admiration for skill displayed in fixing up such ramifications of sheaves and ropes, as, for instance, prevail in relation to grain elevators, or in the necessary equipment of paper making machines, where expanding rope pulleys are employed to alter the speeds in lieu of the old methods of increasing or decreasing diameters by cementing belts to or removing them from the rims.

The continuous system is so well known that you need scarcely be troubled by any further description than that a single rope is passed as many times round both primary and secondary pulleys as there are grooves to be filled, and is then carried across the whole width by means of sliding tension pulleys.

This has proved an admirable arrangement for getting over awkward conditions, because by it any angle may be negotiated or corner turned.

After expressing so much in its favor we strike divergencies of opinion upon which, however, the United States and Britain may well agree to differ. One of these opinions rests with the question as to whether or not the advantages just claimed may not be entirely nullified and transformed into disadvantages if applied to straightforward drives, even though they be oblique, horizontal or vertical. The supreme advantage claimed by the

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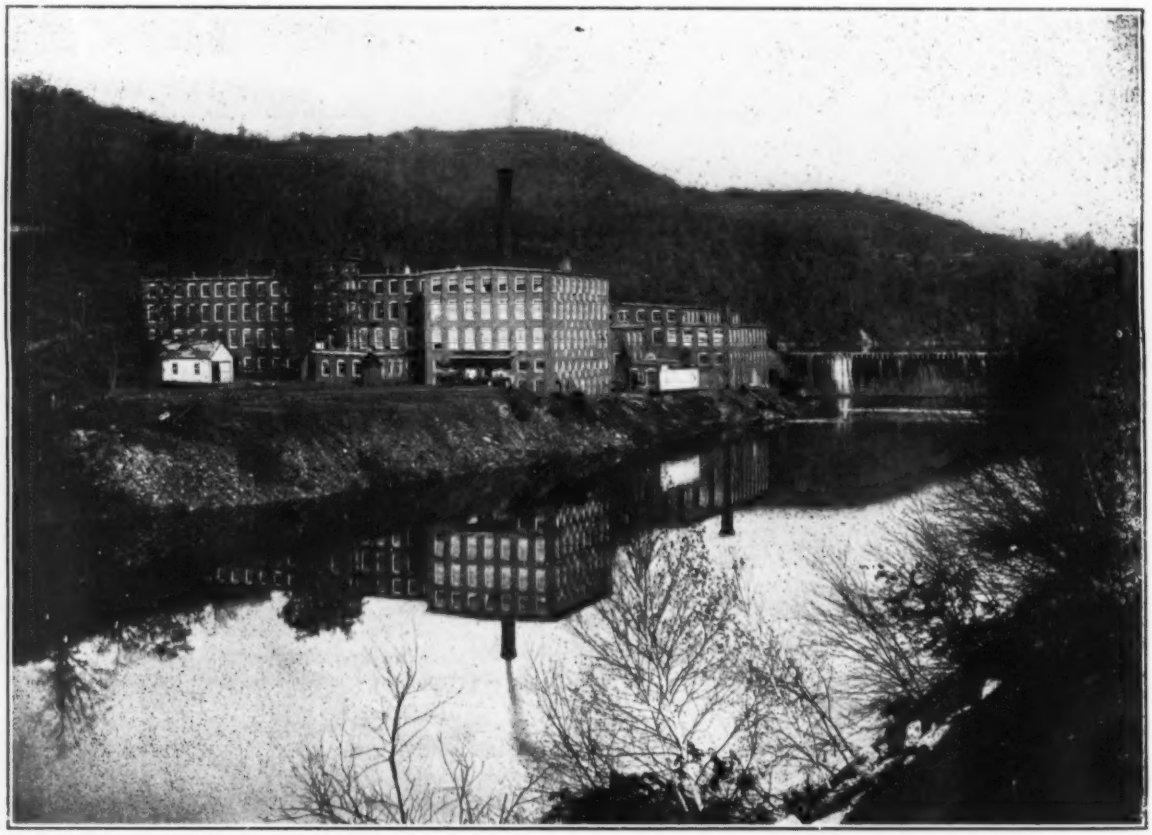

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advocates of continuous driving is equality of tension throughout.

The installation at the grain elevators of the Manchester Ship Canal does not appear to lend countenance to this assertion, from the fact that well defined irregularities are observable when the machinery is in motion, by the trailing span gradually slackening down as each lap completes the circuit, when it tightens up again and repeats the operation so long as movement continues.

Part, though not the whole, of this system has been supplanted by multiple ropes with, we are informed, a considerable saving in friction.

After all, is equality of tension an absolute necessity to efficient power transmission? If the principle of positive movement be admitted then the answer must be in the negative, and for this we can scarcely present a better argument than that offered to a certain consultant, who had drawn a chalk mark across the ropes in the expectation that they would maintain the same relative position after repeatedly traversing the circuit.

Suppose, said the disputant, you can imagine each set of grooves to be tooth wheels as on a bicycle and each spliced rope to be a chain, would you consider it an evidence of slip if one chain hung below another, because it contains more links?

If the sheaves were loose as in a set of blocks, then we could understand how easily tension regulations could be effected.

On the other hand, this tension does not appear to be so much dependent upon the jockey pulley as upon the degree of tightness at which the ropes are originally fixed; if it does, then an amount of creep or slip must be accounted for.

Again, there is the replacement difficulty. In multiple driving more than one rope seldom gives way at a time, and that generally at the splicing, which draws out until the rope slackens far below its fellows. The offender may then be hung aside to await a favorable opportunity, leaving the remainder to carry on the work.

In a continuance drive dependence must be placed upon one splicing which may be considered to be almost always under strain, and as sometimes happens, it may unravel, be carried round and lashed about until the entire range is denuded. To be renewed only at the end of a lengthy process, during which the machinery is standing.

It also is not true that the addition of a single unnecessary pulley, particularly if that be weighted in a vain attempt to regulate the tension, adds considerably to that friction which we labor almost incessantly to minimize.

Resilience of Cotton Ropes

That elasticity of cotton ropes plays a most important part in the economy of rope driving cannot be gainsaid—else why should cotton, which is relatively 50 per cent weaker than manila in tensile, *transmit considerably more power?*

Many and various are the materials which have been pressed into the services of the rope maker; an almost infinite variety of fibres, through the whole range of hemps and flaxes, from the coarse-grained manila to the silk-like ramie, and finally cotton. Ropes have also been made from paper strips, but one experiment was more than enough to prove their inaptitude for the purpose, as the rope under trial collapsed after less than an hour's running.

Owing, it may be conjectured, to the fact that rope driving was cradled in what may be styled the home of the manila trade, that material gained for a time precedence above all others, and if merely judged on the lines of resistance to tensile strains would still hold the field.

The fibres are, however, of so harsh and wiry a nature that they cannot be compressed into a solid mass by the successive twisting operations to which they are subjected, but instead of forming a perfect impact, the strands merely rest upon each other, thus constructing what may be termed a spiral tube. The strands, therefore, scrub one upon another with every bend of the rope until the centre is reduced to a fine powder.

The permanent set of manila is quickly reached while gripping power is so limited that any reduction in the pulleys from 45 diameters must be reciprocated with a corresponding increase in the amount of rope. Advocates of continuous driving recommend 60-rope diameters for manila.

When the system was first introduced into the Lancashire district experiments were so tried in the direction of applying cotton to the manufacture of driving ropes, seeing that no other material was found capable of transmitting power to the various motions of a cotton spinning mule, the particular ramifications of which demand a rope possessing great resilience as well as endurance.

Cotton vs. Manila for Driving Ropes

In making selection between the two materials it will not be wise to lay too much stress upon initial cost, for although cotton is much dearer than manila, its superior resilience, grip and groove impart, which add so greatly to driving force that at least *one-third more power* may be transmitted, besides its *prolonged life*, which may be reckoned at not less *than three to one*, reduce apparently excessive first charges to an insignificant item.

The foregoing statement considerably underestimates relative durabilities, if we take by way of comparison a case where best yacht manila ropes (than which there could be none better of the class were so heavily worked upon a traveling crane that their average life did not exceed six months, whereas a cotton rope was only recently replaced by another of the same make, after running four years and three months under precisely the same conditions.

A considerable number of examples might be quoted to prove that the efficiency and durability of cotton is far in excess of manila, but the fact that in Belfast district, which is reputed to contain the largest manila rope works in the world, over eighty factories have been supplied by one firm alone with cotton driving ropes, should be sufficient to convince the most skeptical.

Here it may be pertinent for me to state that the Pusey & Jones Company, of Wilmington; Charles Walmsley & Son, Bentley & Jackson, and Bertrams, all paper machine builders, have for long adopted the cotton rope exclusively throughout their rope driven machines.

Longevity of Cotton Ropes

As to the life of cotton driving ropes, much of course depends upon their size and the conditions under which they have to work. All things being equal, durability may be gauged by sectional area, and the most economical diameters range from 1½ inches to 1¾ inches, more of the latter being used than any other size.

A remarkable case of longevity may here be quoted where twenty-four cotton ropes 1¾ inches in diameter are employed to transmit 820 horsepower at a velocity of 4,396 feet, direct from the engine flywheel, 28 feet in diameter, to the various rooms of of a Lancashire cotton mill. These were fixed in September, 1878, and all the ropes driving the card room have been running from then till now, a period of over thirty-eight years. Another set has been working an average of twenty hours per day and appear to be little the worse for their twenty-eight years' service.

The lives of other cotton driving ropes similarly circumstanced have extended over periods little short of this, while others again fixed from eleven to fifteen years ago, though working without cessation, week ends excepted, are still doing good service. A good example is to be found at a large paper works near Glasgow, where cotton ropes have been working night and day for nearly twenty years. Such cases of longevity lead to the conclusion that fatigue of material due to constant activity does not readily manifest itself in well-made cotton driving ropes.

Their quick recovery from driving strain is suggested as the cause, seeing that they pull down on the working side but bulge out to their normal diameter immediately they pass to the trailing or slack side of the pulleys.

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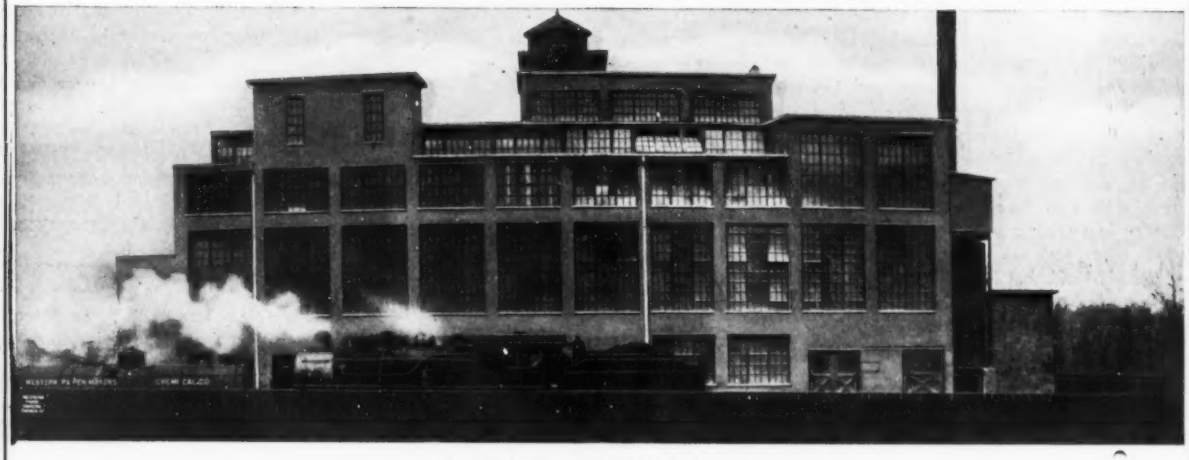

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Simple as it may appear, much more depends upon the construction of a driving rope than is generally supposed. Our time may not, therefore, be unprofitably spent in examining the structure of a few leading lines. Fibrous ropes, it will be observed, are as a rule held together by a serious of twisting operations from the fibre to the yarns and then the strands, which are locked together by a reversal of the same agency.

Ropes of three, four or even seven strands are sometimes employed; there are also lapped ropes so-called, because of the serving of thick cord on the outside of a three-strand rope after the interstices have been filled in with soft yarn.

Then there is the square manila rope of German manufacture with strands interwoven instead of twisted together, but this style besides having those disabilities common to the material is also opposed to that spiral action, which, as we shall endeavor to show, is inseparable from true resilience.

Four Strand Ropes

Seeing, however, that the contest on method of construction lies more particularly with four and three strand ropes, it will be advisable to devote a little more attention to these than the other makes. Taking them in the order mentioned, it may be said that the most striking feature in a four strand rope is the support given by the insertion of a central core, without which it would be impossible to construct an even periphery. If, then, this core is an indispensable adjunct, its collapse must mean the dislocation of the whole structure, and as its usual dimension is only about one-fortieth part of the whole bulk, it may be reasonably assumed that the superior force exerted by the alternate contraction and extension of the spiral as the rope passes over the pulleys must tend towards the breaking up of this core, the period of endurance being limited by its elasticity and the tension at which it is laid. That is what actually takes place.

Three or Four-Stranded Ropes

The terms of the three strand rope gradually gain upon the four in the proportion of one in five, or in other words, six turns occupy the space of five respectively in ropes of the same thickness. The strand spiral of a seven strand rope is still nearer the straight line, being almost double the length of a three strand rope.

Again by tracing a single strand round its full turn, another important difference is observable and which affects the bending capacity of the rope. Only two strands appear between every turn in a three strand, while three occupy the spaces between every turn of a four strand, hence the necessity for increasing the sheave minimum to forty-five diameters. As affecting the resilience and elasticity, admittedly the rope with the more turns in it will carry the shocks better.

Fixed or Revolving Ropes

We still in England have devotees to both, but the argument need be in favor of the fixed rope, since with its angular formation it gains in groove contact over the revolving rope, and contact means power. Further, the fixed rope cannot have the tendency to slip that the revolving rope would have and also the life of the revolving rope is considerably reduced. Ropes which are underworked will very often tend to revolve.

Perhaps the most apt illustration of this would be the drive on a motorcycle, when a V-shaped belt is fitted to a V groove, without, however, the belt reaching bottom, and yet obtaining the greatest possible groove contact and impact.

A most important item in relation to rope driving and one that has caused a considerable amount of controversy is the construction of

Several attempts have been made hitherto without result to fix upon a definite shape for standardizing purposes—quite as desirable as in other branches of engineering.

The curve side is supposed to afford easier withdrawal by conforming in a measure to the contour of the rope—though occasionally insisted upon, is not near so much in evidence as the angular forms. The chief reason being inefficient grip, insomuch that it is generally found necessary to ignore the specified diameter and completely pack them with rope.

The flanged groove is most commonly used because of its narrow pitch and from the belief that flanges give direction to the rope. This supposition does not appear to hold good in every case, for if ropes are inclined to be restless they are likely to rebound from side to side, as shown by dotted circle, before falling into the driving angle. Again these flanges offer a barrier to any useful extension in diameter.

Flangeless grooves hold the field for all round good service. An angle of 45, however, produces a wider pitch than most engineers care to adopt. This objection is overcome by reducing the angle to 40 degrees, which secures more decided impact for the rope without affecting its release. While its acuteness retards, if it does not entirely suppress the detrimental.

Revolving action sometimes takes place, particularly when ropes are underworked.

Forty degree grooves may be set out on the following geometrical lines. A circle to the diameter of the required ropes is drawn, through which the vertical and horizontal centre lines are projected. The chord of the arc AB then becomes the standard of future measurement; decides the centre for the rounded base and, doubled, points the inverted apex of the angle through the points BB, where the pitch is indicated. Another line projected from centre to half AB or its opposite decides the rounded terminals of the midfeathers.

It has been suggested that every size of rope has its best driving angle. But this need not be carried to the length of providing a multitude of templates to cover the whole range. Therefore, since 40 degree grooves give such excellent results, it may well stand for all sizes about 1 inch diameter. While 30 degrees may be just as usefully engaged upon the smaller sizes in general use. Angles of about 25 degrees are usually provided for the bands used on cotton spinning mules

Flat bottomed grooves do not, as a rule, provide for the desirable compression and should not be encouraged. When exact templates of existing grooves are required the quickest and surest way is to take plaster casts the grooves having been previously well greased. These not only give better definition than may be secured by attempting to cut pieces of wood, tin or cardboard to the desired shape; but also show up any wear on the groove sides to be avoided by using thicker ropes when renewals take place.

Sheave diameters have a very important bearing on the question and while in England the minimum standard is taken as thirty times the diameter of the rope, in America forty to forty-five times is accepted. Here again cotton scores over manila, since its softness readily admits of superior bending properties which the native harshness of manila and almost entire absence of resilience compel a higher minimum sheave diameter to which ropes of this material can be bent over.

Cotton ropes are also less susceptible to atmospheric changes than manila for the reason that moisture more readily evaporates through the fibres, thus rendering them practically exempt from internal mildew, which so often is apparent in a discarded manila rope.

Short Centers

For evidence of the fact that by adding sufficient rope to make up for deficient contact, driving may be successfully accomplished when pulleys are almost touching; we need only refer to the case of an engine in Scotland from which spur gear was removed and rope pulleys fixed upon the same centres, permitting a clearance of only eight inches between the rims, 360 horsepower is thus

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comfortably transmitted with sixteen ropes 1¼ inches diameter, at a mill in the north of France the pulleys are so close that a finger would scarcely pass between them.

At the present moment a drive is being fitted for the Armstrong Whitworth Company, of Canada, where on a rolling mill plant the sheaves will be 108 x 87 inches, with only fifteen feet centres and grooved for twelve 1¼ inch ropes. This drive is being fitted with cotton ropes under guarantee from the rope makers, who originally were consulted on the scheme.

Trailing Span of Ropes

The arc of contact is also affected by the position occupied by the trailing span of the ropes which when above the pulleys undoubtedly gives the maximum bearing surface. This position is not always attainable, nor is it under all circumstances desirable. For example, an erratic delivery of power or variable load may set up oscillations in the responsive ropes of such violence as to fling them entirely off the pulleys. Now, as the direction of rotation is so arranged as to bring the trailing span below the pulleys, any tendency on the part of the ropes to wander from their appointed track is held in check by the pull on the tight side, while gravitation tends to control the vibrations on the slack side.

Under such conditions as prevail in rolling mill or gas engine drives where the load is erratic, or the impulses are irregular, oscillations are sometimes set up with such violence as throw the ropes completely off the pulleys. The best known method of avoiding this is to run them through a wooden guard or grid. The construction need not be very elaborate and the frame work may be made of ordinary timber securely bolted together, so as to rigidly hold the oaken blades corresponding to the number of ropes, plus one. The blades are four to six inches wide and have rounded edges. The guard should be fixed fairly near the driven pulley, but actual distance can best be arranged after making practical trials, but approximately 10 per cent. of the centres away from the driven pulley is generally found satisfactory.

While allowing a fair margin of safety in making calculations for power, it should be remembered that there is such a thing as over roping to the detriment of efficiency. Resistance from this cause is not, however, very pronounced in the steady going drives of textile factories, where the fault is mostly displayed by the tendency of the "idle" to exchange with the working side of the ropes.

A Patent Inter-Stranded Cotton Driving Rope

Now, I come to demonstrate to you what is readily recognized in England as the patent inter-stranded cotton driving rope.

This rope is made expressly for power transmission purposes from the finest selected American yarns. Each of the three strands is made up of a succession of sheaths or layer of yarns, which may be peeled until the centre thread is reached.

The rope is machine built, under hydraulic tension, so that a perfect and combined tension is secured to each thread, from the moment these threads are led to the machine. The crinkling effect to be found more or less in all ropes made by the ordinary method, is thereby eliminated.

As previously remarked, the triangulation of strains is secured in three strand ropes, and is maintained in this particular rope even to the individual threads.

In effect this construction means that with the rope at work each thread takes its relative proportion of duty to the others, and again at work, only the outside layer will show abrasion, leaving the next layer intact. This feature is of significant value, since I could quote to you many instance where a 1¾ inch rope after years of work is reduced in diameter, has still sufficient life left in it to enable it to be removed to a drive where, say, ropes of about 1½ inch diameter may be in use.

There is no limit to length in constructing this rope, other than may be controlled by convenience in transportation

All that I have said relative to the make of cotton driving ropes and their application to transmission of power would be of little value without some reference to the question of efficient splicing.

This is so important to the well-being of the system in general that rather than have installations spoiled by indifferent workmanship, expert splicing mechanics, properly trained to this duty, are sent out from England to the continent of Europe, to India, South Africa, Central and South America, Canada and the United States.

Experiments have been made with different devices of metal and other couplings, with a view to dispensing with splicing, but nothing has yet been found which in England would be considered against the long splice.

Here I wish to add that there the services of a skilled splicer are accepted the rope invariably carries with it a period of guarantee against defective material and workmanship. This need appear an attractive feature in negotiating for a cotton rope drive.

WELL KNOWN PAPER MEN IN A WRECK

The 11:30 midnight fast express from Chicago to Detroit over the Wabash that has been so popular with overnight travelers between those two cities, suffered a sudden setback on January 30 last, when the entire train of Pullmans was derailed near North Liberty, Ind. Let Mr. Dreskell tell it:

"We were asleep in our berths—don't ask me what time it was when I woke up. I had no inclination to look at such a thing as a watch. The sensation uppermost in my mind was, why doesn't the car top over and roll down somewhere? Naturally, when I realized that we were still right side up I thought of fire; all the harrowing scenes of wrecks and dead and dying people being carried out from the debris of a smashed-up Pullman train flashed across my mind. I've traveled many thousands of miles, but I've never had such a terrible experience as I went through in probably a very few seconds of time.

"Mr. Schneller was not injured, nor was I. We were both considerably shaken up, and he more seriously than I was. The engineer and fireman were the only ones who lost their lives. But I never want to go through such an experience again. It did not take us long to get into what clothes we could find and get out. The wreck was caused by a split rail or a broken one, they told us, an accident unavoidable in extremely cold weather. We were due in Detroit at 8 A. M., but we were just one day late."

When asked what line he would take to Detroit next time, Mr. Dreskell refused to answer on the ground of incriminating somebody. Just as the PAPER TRADE JOURNAL correspondent started for the door, "Bob" Butterworth facetiously yelled out: "Better put a headline on that interview: 'Fred Dreskell Gets Nearer to Heaven on the Wabash Than He Ever Has Before or Will Again!"

COAL SHORTAGE IN FOX RIVER VALLEY

The plant of the Neenah Paper Company at Neenah, Wis., is the first in that vicinity forced to shut down on account of a shortage of coal. Other mills, some in Neenah, Menasha and Appleton, are getting near the point of fuel exhaustion, and unless coal receipts during the coming week are more extensive than they have been the last few weeks, more mills will be forced into idleness. The condition throughout the Fox River Valley is alarming. The shortage of coal has been a cause for worry ever since the first of the year, but not until the last week has there been any actual fear of its forcing mills to close down. Neenah Paper Company officials stated to-day they they did not know how long their mill would be down, but operations will not be resumed until the coal pile can be sufficiently replenished to guarantee continuous operation throughout the rest of the winter.

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Use of Slabwood and Other Sawmill Waste Has Been Tried for Paper Making Purposes But Has Not as Yet Proved Uniformly Satisfactory—What May Be a Solution of an Important Question Is Helpfully and Interestingly Discussed in the Following Article.

Paper Read at Technical Section by Rolf Thelen[2]

The depletion of readily available stands of spruce and other pulpwoods has reached a stage which is very acute, and pulp mills throughout the country are casting about in the hope that some solution of this problem may be found. The use of slabwood and other sawmill waste has been tried, but has not proven uniformly satisfactory for a number of reasons, among which may be mentioned the comparative difficulty of handling this class of material in yards and woodrooms designed especially for handling roundwood. The matter of freight has also been a bugaboo which has done its share to discourage the use of mill waste, and has limited the distance through which both waste and roundwood can be shipped at a profit.

One of the possible solutions which presented itself was in the chipping and drying of the mill waste and less accessible roundwood at the point of production, and the shipment to the pulp mill in the form of dry chips, either loose, in bales, or in some other convenient package. Some of the advantages of such a system have been mentioned in the previous paper, but it may be well to recall them here:

1—Elimination of freight on excess moisture, bark, knots, slivers, dust, etc.

2—Uniform dry product which can be handled economically by any chemical pulp mill eliminating excessive handling and manufacturing costs.

3—Freedom from deterioration or decay, permitting the storage and use of various non-durable species which can not now be used economically.

4—Scientific accuracy; chips, either loose or baled, can be purchased on a dry-weight basis, and payment made for the actual bonedry weight of sound chips received.

5—A greater economy in the cooking of pulp is claimed for the use of uniformly dry chips instead of ununiformly wet ones: we have no accurate data on this point at present.

Two of the most important points in connection with this method of handling pulpwood are: "Can it be done?" and "How much will it cost?" An endeavor will be made in the following pages to shed some light upon both of these questions.

Considering first the physical possibility of the process: roundwood can assuredly be barked—of that there is not the slightest doubt. Slabwood and other forms of waste can also be barked; in fact, a number of pulp mills report the successful barking of mill waste and its daily use in their plants. Hand barking, mechanical barking, and drum barking are all used at present; attention should be directed especially, however, to those forms of waste which require no barking; waste cut from peeled or rossed logs. The annual production of waste from peeled hemlock is large, and much or all of it which is suitable should be available for chips. Attention should be directed, also, to the possibility of mechanically rossing saw logs, thus making available the bark and the clean waste as well. A plant to operate upon this process is now being erected in Wisconsin, and is to be completed before the coming spring.

[2] In charge of Commercial Extension, Forest Products Laboratory, Madison, Wisconsin.

The chipping of roundwood offers no difficulties, of course, and it appears from the reports of a number of mills that the chipping of mill waste is being accomplished successfully as a matter of daily routine.

The matter of drying chips has been given attention by several manufacturers of driving equipment, and a number of installations are reported in very satisfactory operation.

The baling of the chips is apparently the only phase of this process which has not as yet been fully demonstrated on a commercial scale. The baling of shavings has been accomplished successfully for many years and it seems reasonable to suppose that the shavings presses can be modified in such a manner as to produce bales of chips strong enough to stand handling and compact enough to allow the loading of box cars to their minimum weight. This has already been done experimentally[4] and the writer is assured by those actively engaged in the development of a suitable press that the desired result is being rapidly attained.

It appears, therefore, that so far as the actual mechanical operation of the plant might be concerned, no difficulties of moment need be anticipated.

The cost of producing the baled chips seems, then, to be the determining factor, and, consequently, to merit careful thought.

The laboratory has obtained cost estimates from the manufacturers of the various kinds of machinery needed in a chipping, drying and baling plant, and from these has constructed various first and operating cost estimates for plants designed to operate under different conditions. In addition, data have been secured from various pulp mills, showing actual costs of operating present types of woodrooms.

These estimates are intended solely to give a general idea of what may be expected from the new method, and must not be considered as final in any sense of the word. In fact, it is probable that, at the present moment, most of the machinery estimates are somewhat below market.

Table I, entitled, "Wood Room Costs, 50 Cords of Rough Roundwood in Ten Hours," is based upon estimates obtained from various mills, and represents, the writer believes, average conditions in the woodrooms of the country.

TABLE I.

WOOD ROOM COSTS—50 CORDS OF ROUGH ROUNDWOOD IN TEN HOURS.

	Cost at plant	Horse-power	Power cost per cord at ½c. per hp. hr.	Labor cost per day
Slasher	$750	40	$0.04	.....
Barkers	2,500	70	.07	.....
Chipper	500	60	.06	.....
Screen	300	5	.005	.....
Knotter and splitter	300	10	.01	.....
Crusher	300	40	.04	.....
Blowers and conveyor	1,000	100	.10	.....
Motors	4,900	..	...	.....
Building and installation	10.000	..	...	.....
Total	$20,550	325	$0.325	$43.85

[4] "Pulpwood Measurements and Some Factors Involved in Chipping and Baling Pulpwood," by O. F. Bryant. *Pulp and Paper Magazine of Canada*, Vol. XIV, No. 24, Dec. 25, 1916.

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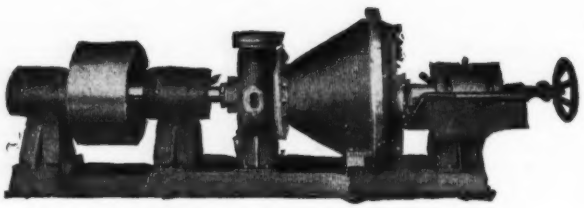

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Overhead[1]—based on 17 per cent. of investment; 300 working days (15,000 cords per annum)

	$\frac{17\% \times 20,550}{15,000}$	= $0.233 per cord
Power	=	0.325 per cord
Labor	= $\frac{43.85}{50}$	= 0.88 per cord
Total	=	$1.438 per cord

[1] Overhead consists of the following items: Interest 6%, depreciation 6%, and maintenance and supervision 5%.

Table II, entitled, "Wood Room Costs, 50 Tons of Chips from Peeled Slabs and Edgings in Ten Hours," presents, similarly, what are believed to be fair costs for a chipping, drying, and baling plant of the same size as the knife barking plant of Table I. The assumption is made that one cord of rough roundwood will produce one ton of good chips at 12 per cent moisture.

Table III, entitled, "First and Operating Costs of Motor-Driven Plant to Bark, Chip, Dry and Bale 300 Cords of Spruce in Twenty-Four Hours," indicates the costs of a plant such as would be built in or near the forest, to prepare dry baled pulp chips for shipment, and contemplates twenty-four hour per day operation, whereas the other tables are based on a ten hour per day operation.

Turning first to Tables I and II: It is assumed that both plants will be motor-driven, and that the plant I is equipped with knife barkers, and handles its wood direct from the pond. The chipping, drying, and baling plant of Table II is assumed to be erected in connection with a saw mill and to receive its supply of clean wood direct from the saw mill conveyor.

It should be pointed out here that a saving could probably be effected in plant I by the installation of modern drum barking machines in place of the knife barkers. We have cost data on several plants using drum barkers, which show a low barking cost.

TABLE II.

WOOD ROOM COSTS—50 TONS[1] OF CHIPS FROM PEELED SLABS AND EDGINGS IN TEN HOURS.

Building or Equipment	Cost at plant	Horse-power	Power cost per cord at ½c. per hp. hr.	Labor and fuel cost per day
Chipper	$1,000	80	$0.80	$5.50
Crusher	500	50	.05	2.50
Screen	600	10	.01	.....
Conveyors	600	20	.02	.....
Knotter and splitter	300	10	.01	2.00
Building and installation	1,900	...	...	.....
Drying equip. and building installed	18,000	100	.10	2.50
Boiler installed	2,400	..	...	3.00
Boiler room	700	..	...	.....
Baling presses (installed)	1,500	70	.07	15.00
Press room	1,000	..	...	.....
Motors	5,200	..	...	.....
Fuel	...	..	...	.....
Total	$33,700	340	$0.34	$34.50

Overhead—based on 17 per cent. of investment; 300 working days (15,000 tons per annum)

	$\frac{17\% \times 33,700}{15}$	= $0.38 per ton
Power	=	0.34 per ton
Labor	= $\frac{34.50}{50}$	= 0.69 per ton
Total	=	$1.41 per ton

[1] 50 tons when dried to 12 per cent. moisture.

TABLE III.

FIRST AND OPERATING COSTS OF MOTOR-DRIVEN PLANT TO BARK, CHIP, DRY AND BALE 300 CORDS OF SPRUCE IN 24 HOURS.

Item	Cost at mill	Horse-power of motor	Cost of power per cord at ½c. per hp. hr.	Labor cost per cord
Slasher	$1,500	50	$0.02	$0.06
Barking Drum	7,000	75	.03	.05
Drum and motor, complete, installed.				
Chipper	1,200	120	.048	.02
Crusher	500	50	.02	.02
Splitter	300	10	.004	.02
Knotter	300	10	.004	.02
Screen	600	10	.004	.02
Dryers	40,000	250	.10	.04
Includes building and conveyors but not motors and boiler.				
Boiler	5,000	...	...	.04
500 hp. for dryers; cost installed.				
Baling presses	2,700	180	.072	.43
9 Presses: includes loading onto cars, baling, wire, etc.				
Wood, Room, etc	3,000	50	.02	.04
Includes installation and conveyors.				
Press Room, etc	4,900	20	.004	.02
Press Room, etc	4,000	...	...	...
Motors	11,250	...	...	...
Excluding barking drum motor.				
Totals	$77,350	825	$.330	$.780

Interest at 6% of $7,350 = 4641.00 for 90,000 cords or $ .0516 per cord
Depreciation at 6% of 77,350 = 4641.00
.0516 " "
Maintenance at 5% of 77,350 = 3867.50
.0430 " "
Power .3300 " "
Labor .7800 " "
Total cost per cord $1.256 " "

We also have data on plants which have large storage yards and handle the wood, in the shape of bolts, from car to yard and from yard to woodroom. The total yard and woodroom costs in these plants check up well with the costs shown in Table 1. The variations in the cost of handling the wood among individual plants are very large, however, depending upon the design of the woodroom and upon many local conditions.

Especial attention is directed toward the drying equipment in plant II. This apparatus is supplied with its own boiler and boiler house, and allowance has been made for the cost of fuel and for the labor of a fireman. In many sawmills it would be possible to draw steam from the boilers already installed, and the cost of fuel and labor as well as the first or investment cost would consequently be reduced accordingly. Furthermore, in order to place the plant on the same basis as plant I, it was assumed that the drying equipment would operate only ten hours per day, whereas installations of this character can just as well be operated continuously; one man could handle both boiler and dryer.

It appears from a study of the two tables that the cost of producing a ton of baled chips (12 per cent moisture basis) from slabwood is about the same as that of producing the same amount of chips from unbarked roundwood in an ordinary average pulp mill woodroom. To this cost must, however, be added a handling charge at the pulp mill, from the cars to the chip bin (possibly first to a storage shed) which will probably be between 25 to 50 cents per ton, and may average 40 cents. It would appear, then, that a ton of baled chips (12 per cent moisture basis) should be worth within 40 cents as much delivered at the pulp mill as the chips from a cord of unbarked roundwood are worth in the chip bins. In other words, the value of a ton of chips (12 per cent moisture basis) equals the value of a cord of unbarked roundwood plus the cost of handling and chipping the roundwood, minus the cost of handling the baled chips from car to bin, (both values basis f. o. b. pulp mill). On the assumptions which we have made, the value of a ton of chips would be equal to that of a cord of round unbarked wood plus $1.44 minus 40 cents; that is, a ton of chips would be worth about a dollar and four cents more to the pulp mill than a cord of rough unbarked wood (f. o. b. pulp mill). Further, the actual cost of the baled chips, at the point of manufacture, would be only about $1.41, counting the value of the wood as nothing, leaving an amount equal to the price of round unbarked wood at the pulp mill, less 37 cents, to cover freight and profit.

In other words, it should be possible to ship this material a long distance and still deliver it at a price comparable with the price of roundwood. In some places, of course, mill waste has a good value as fuel; in such cases, this value must be deducted from the amount available for freight and profit. In those cases, however, where the waste would otherwise go to the burner, we would be justified in adding about 40 cents to the amount available for freight and profit, since an investigation[2] recently made by the writer

[2] "The Cost of Burning Sawmill Refuse," by Rolf Thelen, *American Lumberman*, Apr. 22, 1916.

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showed that it costs the sawmill on the average, 40 cents per cord to burn mill waste.

Table III was constructed in order to show the possibilities in the chipping, drying and baling of roundwood and the shipment of the baled chips over long distances, and is intended to represent as economical a plant as could be built for this purpose. This plant is designed to take logs from a pond and to deliver the finished product into cars. The cost of the pond and all other costs incident to delivery of the logs to the plant have been excluded. This plant is intended for continuous operation 300 days in the year, and is large enough to get full efficiency out of the various machines. It is motor driven, just as plants 1 and 2 are, but is equipped with a barking drum instead of knife barkers as in plant 1. The remarkable thing about this plant is that it is so much more efficient than plant 2 that it can bark, chip, dry, and bale roundwood more cheaply than the other can chip, dry, and bale slabwood. The cost of barking river driven or ponded wood by means of drums is comparatively low, however.

If we assume the cost of wood in the pond at $4 per cord, the total cost of the baled chips f. o. b. cars will be $5.25. Making the same assumptions as were made before, there will be available for freight and profit, per ton, $1.04 (the difference in value between a ton of chips and a cord of rough roundwood), plus the difference between the value of roundwood at the pulp mill and $5.25. If, for example, we assume the value of a cord of roundwood at the mill to be $10 this allowance for freight and profit will be $1.04+$10—$5.25, or $5.79. If a profit of 79 cents be allowed, the maximum freight rate permissible would be 25 cents per hundred pounds.

It will be noted that a very large portion of the cost is devoted to baling: as already mentioned, chip presses have not been commercially developed, and our estimates are all based upon shavings presses, which are comparatively small and take a good deal of labor. It seems reasonable to suppose that presses especially designed for chips and arranged to give larger bales than the ordinary shavings bale would be able to operate more economically than Table III indicates.

This brings up an interesting point in connection with the need for baling. In certain circumstances, with a short haul, and where it is not desired to store the chips any length of time, it might well be that it would be the part of economy neither to bale nor to dry the chips, but simply to load them loose into a coke car (or similar car with racks) and ship them to the pulp mill in the green condition.

The general conclusions of the study are as follows:

1—The chipping of the suitable waste of pulpmaking woods at the sawmill and the shipment of the chips, green or dry, loose or baled, as local conditions demand, should be a profitable venture, and would assuredly help to increase forest utilization, at the same time providing the pulp mills with a steady, new supply of wood.

2—The chipping, drying, and baling of roundwood on stands located at comparatively great distances from the pulp mills should prove profitable if reasonable freight rates can be secured, and would make available to the pulp mills stands which are now entirely out of the question.

The writer wishes to issue a closing word of caution regarding the indiscriminate use of the figures presented in Tables I, II, and III; although they have been prepared with care, they must be considered more in the nature of an illustration than as final definite costs applicable to any conditions which might arise.

NEW PAPER BIDS TO BE OPENED FEBRUARY 17

WASHINGTON, D. C., February 5, 1917.—The Joint Congressional Committee on Printing at an executive session last week decided to open new paper bids on February 17 on items not awarded for the Government Printing office. The committee made one allowance, which is as follows:

"Preference will be given to bidders who comply literally with all the conditions of the following instructions, *BUT* bidders MAY base their proposals upon such other terms and conditions as they desire to submit."

No proposal will be considered, however, which is not complete within itself and is not based on the standard samples and specifications.

Following are the items on which bids are to be opened and the approximate quantities needed:

310,000 pounds of news print paper.
11,890,000 pounds of machine-finish printing paper.
20,000 pounds of antique-laid printing paper.
1,995,000 pounds of sized and supercalendered printing paper.
300,000 pounds of half-tone printing paper.
200,000 pounds of tablet writing paper.
851,000 pounds of writing paper, machine-dried.
8,000 pounds of writing paper, tub-sized, loft-dried.
400,000 pounds of U. S. M. O. blue safety machine-finish paper.
41,000 pounds of ledger paper, colored, tub-sized and loft-dried.
750 pounds of ruled manila tissue paper.
5,000 pounds of white tissue paper.
2,000 pounds of cream and white stereo tissue paper.
275,000 pounds of cover paper.
100,000 pounds of Kraft wrapping paper.
885,000 pounds of manila paper.
20,500 pounds of manila tympan paper.
130,000 pounds manila board.
25,000 pounds of cardboard.
780,000 pounds of bristol board.
19,000 pounds of index bristol board.
2,000 pounds of white paraffin paper.
60,000 pounds of monotype keyboard and casting machine paper.
10,000 pounds of plate-wiping paper for embossing presses.
9,000 pounds of lining and stripping paper.
260 reams of lining paper.
1,500 pounds of paperoid.
3,000 pounds of red pressboard.
1,000 sheets of 15 x 21 in. parchment.
1,000 pounds of news board.
100,000 pounds of chip board.
308,000 pounds of strawboard.
75,000 pounds of box board, lined.
850,000 pounds of binder's board.
40,000 pounds of trunk board.

In cases where more than 1,000 reams are called for proposals will be received for 1,000 reams or more.

TO STUDY PAPER MAKING AT SOUTH BREWER

Six students from the Massachusetts Institute of Technology have just arrived from Boston and will take up residence in Bangor, Me., for the purpose of studying paper making at the plant of the Eastern Manufacturing Company at South Brewer.

The director of the work for M. I. T. is Hugo Hanson, B. S. '12, and the assistant, Wilfred A. Wylde, a graduate of M. I. T. in the class of 1916.

These subjects will be studied at the big eastern plant: Electrolysis of aqueous solutions; evaporation and condensation; drying of sheet materials; corrosion of metals; refractories and furnaces; washing and bleaching; power transmission; stirring and mixing; microscopy; thermometry; organization and management.

Two of the students are from China.

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Uniform System of Accounting

News-Print Manufacturers Association Through Secretary G. F. Steele Presents Plan for the Standardizing and the Making Possible of a Uniform System of Costs—Suggestions Presented Have Been Carefully Thought Out and Deserve the Careful Consideration of the Trade.

The report of the special committee on Uniform System of Accounting was distributed to the members of the News-Print Manufacturers' Association by Secretary G. F. Steele with the following comment:

Gentlemen:—Some months ago it was decided by the Executive Committee that a Special Committee on Uniform System of Accounting should be appointed to devise a plan for standardizing and making possible a uniform system of costs.

The Executive Committee appointed the following persons to act as members of this special committee:

Thomas McLaren, Comptroller Minnesota & Ontario Power Company, International Falls, Minnesota; Owen Shepherd, Treasurer International Paper Company, New York, N. Y.; Louis Armstrong, Treasurer Laurentide Company, Ltd., Grand Mere, Province of Quebec, Canada; P. B. Wilson, Vice-President Spanish River Pulp & Paper Mills, Ltd., Sault Ste. Marie, Province of Ontario, Canada; J. M. Sexsmith, Assistant Treasurer St. Regis Paper Company, Watertown, New York.

With these five men were associated E. M. Mills, a partner in the firm of Peabody, Houghteling & Company, Chicago, and John R. Loomis, of the Accounting Firm of Loomis, Suffern & Fernald, 149 Broadway, New York, N. Y.

The first meeting of the Committee was held in the City of Chicago, on October 18, 1916, and since that time much work has been done by those who were present at the Chicago meeting with a view to outlining a standard system of uniform accounting. The absence of the writer from our office, by reason of illness, has prevented more prompt action, and we are only now able to send out to the members of this Association, the plans and recommendations of this Special Committee.

The grateful acknowledgments of the members of this Association are due the members of this Special Committee, who have so freely given of their time and experience for the benefit of the Association generally.

I hand you herewith a copy of the report which has been submitted by the Committee.

You will observe that John R. Loomis has been retained by the Association and that his services are at the disposal of the members in an advisory capacity with regard to the working out of the standard system of costs. This does not contemplate that the Association is able to stand the expense incurred if members of the Association desire to arrange with Mr. Loomis to visit them and to confer with them regarding their methods of accounting. It is only contemplated that Mr. Loomis will advise the Association and its members by correspondence. Mr. Loomis has acted as advisor to many of the paper mill companies of this country and is fully competent to assist others who may desire his services and we can cordially recommend him to the trade.

The members of the Executive Committee have decided for their own companies to adopt the standard form of accounting, and it is hoped that all of the other members of the Association may find it possible to do likewise, in order that we may be able to exchange cost figures with the assurance that they are all based upon the same kind of foundation.

Following the example of the producers of yellow pine in the South, it is arranged that the members of the Executive Committee of this Association will, commencing with the year 1917, send their cost figures to some one to be hereafter selected at the close of each month and that they will be tabulated, without mentioning the names of the companies submitting these costs, and that this tabulation of costs will be sent to each member of the Executive Committee. Later, all the companies desiring to enter this arrangement, will be at liberty to do so, and it is hoped that ultimately we may be as successful in exchanging cost figures as are the companies which are producers of southern pine, to the very great benefit of that industry.

Trusting that you may be able to take immediate action in this matter and regretting the unavoidable delays which have occurred through the illness of the writer, I am,

Yours sincerely,

G. F. STEELE.

Gentlemen.—Your Committee has for some time past considered the desirability of adopting a uniform system of cost accounts for the mills manufacturing news-print paper in the United States and Canada, and at a meeting held at Montreal on July 19, 1916, appointed a Special Committee to consider this matter.

The Committee so appointed convened at the Hotel Blackstone, Chicago, on October 18-19, 1916, for the purpose of devising a plan for standardizing and making possible a uniform system of costs.

There were present: Thomas McLaren, representing Minnesota & Ontario Power Company; William Struthers, representing The Spanish River Pulp and Paper Mills, Ltd.; Louis Armstrong, representing Laurentide Company, Ltd.; Owen Shepherd, representing International Paper Company; E. M. Mills, representing Peabody, Houghteling & Company, Chicago; G. F. Steele, Secretary News-Print Manufacturers' Association; John R. Loomis, Accountant, representing the News-Print Manufacturers' Association.

Mr. Steele's Remarks

The meeting was called to order by Mr. Steele with the following remarks:

Gentlemen.—In opening the meeting of this Committee, I desire to thank each of you for the interest you have displayed in the work of our Association by coming long distances to participate in a conference to devise a uniform system of accounting for the manufacturers of news print paper. The members of the Executive Committee and the members of the Association all appreciate very highly the unselfish and public spirited attitude which you have assumed in devoting your time to this work, which I trust will be ultimately very fruitful of good results for the industry.

It is unfortunate that this work was not begun earlier and that we did not have a uniform system of accounting established in all of the news print mills prior to the investigation of our affairs which has recently been made by the Federal Trade Commission. If we had long ago adopted such a system, the work of preparing the data for the Federal Trade Commission would have been very much simpler and more effective.

You are probably all of you familiar with the excellent work which has been done in this direction by the Southern Pine Association of New Orleans, Louisiana, but I doubt if you fully appreciate the great satisfaction which has been experienced by

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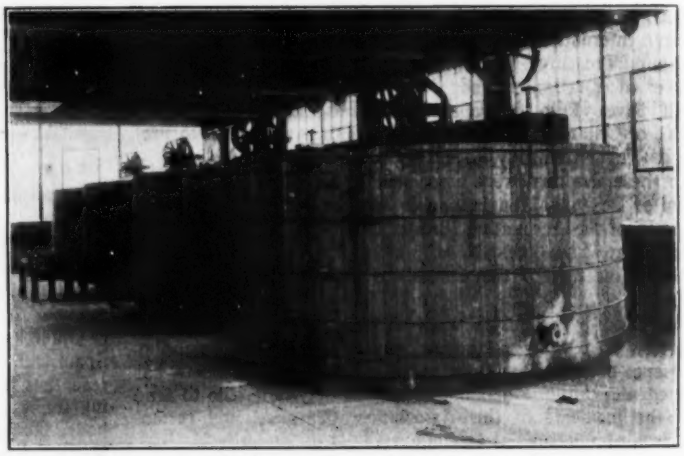
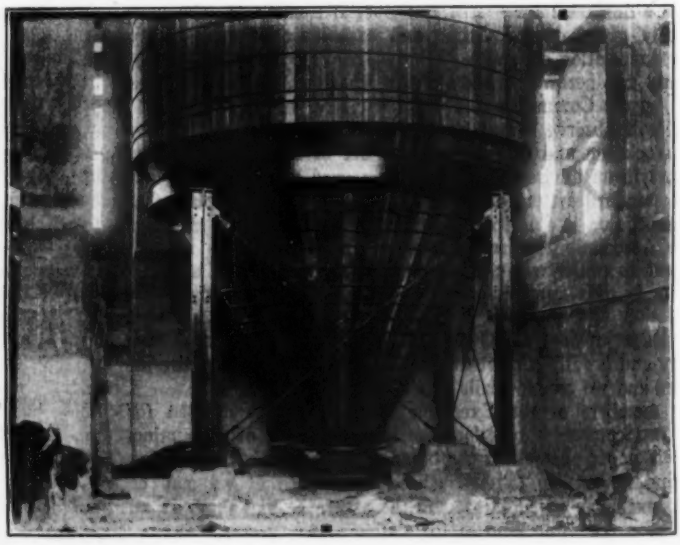




the members of that Association in the monthly comparison of costs which is tabulated and sent out to all those who participate in this cost interchange in that Association. It is hoped that later, when we have established a uniform system of accounting in the news print paper industry, we may be able to follow the excellent example set by the Southern Pine producers and exchange costs of the manufacture of news print paper without showing the names of the producers. This would certainly enable those who are charged with the duty of operating news print paper mills to ascertain whether their own costs are as low as they should be or not. There are many men who are filled with complacency and gratification with their own costs, who might be shocked to find that their complacency is not justified by the facts in the case. One of the largest and most efficient producers of news print paper on the North American continent confided to me recently that he had seen the costs of a small concern making news print paper, which were so much better than his costs that it had filled him with regret. Those who are satisfied with the result of their efforts have reached the place where progress is impossible, and the man who is eternally dissatisfied with himself usually finds a way to achieve greater results in the future, and I hope that this will be the effect on the minds of the producers of news print paper, and that ultimately the result of your efforts will be to benefit the industry by pointing out to those whose costs are too high the necessity of greater sustained effort toward better manufacturing conditions.

I desire to suggest to you at this time the necessity of avoiding too much attention to detail in your deliberations. If you can lay out the broad, general principles of true accounting for this industry, the details can easily be worked out, for we do not care how a man arrives at the truth or by what road, so long as he finally arrives, but it is exceedingly necessary that fundamental principles shall be established for the guidance of all manufacturers of this grade of paper in order that comparisons when made shall be based on figures made up in the same general way.

I shall be an interested listener at your meetings, and only regret that my own unfamiliarity with good accounting methods does not enable me to be of greater assistance to you in your councils.

Mr. Shepherd Elected Chairman

An organization was effected by the election of Owen Shepherd, Treasurer of the International Paper Company, as Chairman, and Thomas McLaren, Auditor of the Minnesota & Ontario Power Company, as Secretary. The Committee immediately upon its organization proceeded to give careful consideration to the details of the problem before them; that is, to establish a proper basis for a uniform system of cost accounts for news print paper manufacturers.

The great importance and need of accurate costs are more fully appreciated at the present time than ever before, and although more careful attention and thought are being given to their proper development, the ascertaining of actual manufacturing cost (or cost of production) is a problem that many manufacturers have yet to solve.

The chief consideration in the development of manufacturing cost should be simplicity, and any system adopted should be easily understood and be economical in operation. This Committee, therefore, in taking up its work has endeavored to present to your Committee a system that is a clear and concise statement of what the mill is consuming in labor and material, as well as its operating expenses, and at the same time, a system that by slight changes may readily be adapted to the conditions existing at any plant.

The forms of Cost Sheets for Paper, Ground Wood and Sulphite, prepared and submitted to this Committee by John R. Loomis (the Accountant employed to assist the Committee in its efforts along this line were accepted as a guide for the discussions and finally adopted as being the simplest and most direct method of classification and expression for such costs.

The elements entering into the manufacturing costs are grouped under three general classes, viz., Stock, Conversion and Burden—Stock including all raw material used; Conversion including labor and all other materials used in converting the raw material into finished product; Burden including generally all charges necessary to be included in the cost of manufacturing other than Stock and Conversion, such, for instance, as Taxes, Insurance, Rents, Interest on Bonds and other obligations, Reserve for Depreciation.

Items Entering Into News Print Paper

The following is a classification of the various items entering into the cost of news print paper, sulphite and groundwood as adopted by your Committee under the general head of Stock, Conversion and Burden:

PAPER	SULPHITE	GROUND WOOD.
(a) *Stock:*	(a) *Stock:*	(a) *Stock:*
1 Sulphite—Own Make	13 Prepared Wood—Spruce	13 Prepared Wood—Spruce
2 Sulphite—Purchased	14 Prepared Wood—Balsam	14 Prepared Wood—Balsam
3 Ground Wood—Own Make	15 Prepared Wood—Hemlock	
4 Ground Wood—Purchased	16 Prepared Wood—Chips	
5 Sundry Fibres	17 Sulphur	
6 Waste Paper	18 Lime	
7 Wrappers	19 Limestone	
8 Fillers		
9 Alum		
10 Bleaching		
11 Color		
12 Size		
(b) *Conversion:*	(b) *Conversion:*	(b) *Conversion:*
20 Manufacturing Labor	20 Manufacturing Labor	20 Manufacturing Labor
		21 Pulp Stones
22 Machine Clothing	22 Machine Clothing	22 Machine Clothing
23 Wires	23 Wires	23 Wires
24 Screen Plates	24 Screen Plates	24 Screen Plates
25 Belting	25 Belting	25 Belting
26 Lubricants	26 Lubricants	26 Lubricants
27 Finishing Material		
28 Repairs—Material	28 Repairs—Material	28 Repairs—Material
29 Repairs—Labor	29 Repairs—Labor	29 Repairs—Labor
30 Fuel—Coal	30 Fuel—Coal	30 Fuel—Coal
31 Fuel—Oil	31 Fuel—Oil	31 Fuel—Oil
32 Fuel—Wood	32 Fuel—Wood	32 Fuel—Wood
33 Fuel—Waste	33 Fuel—Waste	33 Fuel—Waste
34 Cores		
35 Miscellaneous Operating	35 Miscellaneous Operating	35 Miscellaneous Operating
36 Water Rent	36 Water Rent	36 Water Rent
37 Power—Electric	37 Power—Electric	37 Power—Electric
38 Power—Steam	38 Power—Steam	38 Power—Steam
39 Lighting	39 Lighting	39 Lighting
40 Mill Office	40 Mill Office	40 Mill Office
41 Barn or Teaming	41 Barn or Teaming	41 Barn or Teaming
42 Switching	42 Switching	42 Switching
(c) *Burden:*	(c) *Burden:*	(c) *Burden:*
43 Taxes	43 Taxes	43 Taxes
44 Insurance	44 Insurance	44 Insurance
45 Rents	45 Rents	45 Rents
46 Interest on Bonds, etc.	46 Interest on Bonds, etc.	46 Interest on Bonds, etc.
47 General and Adm'n Expenses	47 General and Adm'n Expenses	47 General and Adm'n Expenses
48 Reserve for Depreciation	48 Reserve for Depreciation	48 Reserve for Depreciation

In the development and statement of these Costs the several items grouped under Stock and Conversion give very little trouble, as their character as elemental products is so generally recognized they offer no difficulty either in calculation or allocation. It is with the introduction of the factor of Burden that the science of Costs becomes more complicated. The minor elements of Burden offer no particular difficulty. It is the items of Inteset on Bonds and Other Obligations and Reserves for Depreciation that give rise to argument and dissension, as even the accounting profession are not yet of one mind as to the propriety of including these items directly as an element of cost under Burden Expense. There are as many arguments against their inclusion as for their inclusion. The fact remains, however, that these items must be considered in determining a reasonable profit on a product. This Committee, therefore, is in favor of including these items as a part of the Burden Expense to determine the proper manufacturing cost f.o.b. mill, as we are considering cost only of a single product of a mill continuously run. Under such conditions cost

SCHORSCH & CO.

Manufacturers of

PAPER BAGS and SACKS

FACTORY
132ND TO 133RD ST & BROOK AVE

OFFICE:

500 East 133rd Street

NEW YORK CITY

TRADE MARK

This Registered Trade Mark Octagon
On a Paper Bag
Vouches for its Good Quality

We produce a very superior line which includes all grades of

Quick Opening, Square, Flat and Satchel Bottom Bags

Millinery, Notion, Glassine Bags and Specialties

Flour, Poultry and Fuel Sacks, etc.

Prompt shipments due to our excellent manufacturing and printing facilities enable us "to serve you right."

Samples and prices on application

should be determined for the entire product and many of the finer distinctions of cost accounts may be ignored.

A Perpetual Inventory

The following is a detailed description of the manner in which the several accounts entering into the above classification are to be kept. It will be noted that the method of handling these accounts results in a perpetual inventory:

(a) STOCK:

1. SULPHITE—OWN MAKE. This account will be charged with the quantity and value of Sulphite used in the manufacture of Paper, transferred from "Finished Product—Sulphite" account.
2. SULPHITE—PURCHASED. This account will be charged with all purchases of other makes of Sulphite, including freight and handling, and credited with the amount used in the manufacture of Paper, leaving a balance representing inventory.
3. GROUNDWOOD—OWN MAKE. This account will be charged with the quantity and value of Groundwood used in the manufacture of Paper, transferred from "Finished Product-Groundwood" account.
4. GROUNDWOOD—PURCHASED. This account will be charged with all purchases of other makes of Groundwood, including freight and handling, and credited with the amount used in the manufacture of Paper, leaving a balance representing inventory.
5. SUNDRY FIBRES. This account is charged with all purchases, including freight and handling, and credited with the amount used in the manufacture of Paper, leaving a balance representing inventory. Under this heading are included:

   Cotton Waste — Bagging
   Rags — Soda Pulp
   Other Fibrous Material

6. WASTE PAPER. This account is charged with all purchases, including freight and handling, and credited with the amount used in the manufacture of Paper, leaving a balance representing inventory. Under this heading are included all kinds of paper used in Stock.
7. WRAPPERS. This account is charged with all purchases, including freight and handling, and is credited with the amount used in the wrapping of paper manufactured, leaving a balance representing inventory. A separate account should be opened if Wrappers—Own Make are used.
8. FILLERS. This account is charged with all purchases, including freight and handling, and is credited with the amount used in the manufacture of Paper, leaving a balance representing inventory. Under this heading are included:

   Clay — Flourine
   Talc — Starch
   Rice Flour — Agalite

9. ALUM. This account is charged with all purchased, including freight and handling, and is credited with the amount used in the manufacture of Paper, leaving a balance representing inventory.
10. BLEACHING. This account is charged with all purchases, including freight and handling, and is credited with the amount used in the manufacture of paper, leaving a balance representing inventory. Under this heading are included:

    Bleach — Vitriol — Alkali
    Lime — Sulphuric Acid — Chloride of Lime
    Soda Ash — Caustic Soda — Acetic Acid

11. COLOR. This account is charged with all purchases, including freight and handling, and is credited with the amount used in the manufacture of paper, leaving a balance representing inventory. Under this heading are included all colors and chemicals used in coloring.
12. SIZE. This account is charged with all purchases, including freight and handling, and is credited with the amount used in the manufacture of paper, leaving a balance representing inventory. Under this heading are included:

    Rosin — Silicate of Soda — Alkali
    Soda Ash — Fish Oil — Glue
    Salt

13. PULP WOOD USED. This account is charged with the quan-
14. tity and value of prepared wood used in the manufacture
15. of Sulphite and Ground Wood, transferred from "Prepared
16. Wood" account. The Committee strongly recommends that Pulp Wood cut from own lands should be charged into costs at a conservative market value. This account includes:

    For Sulphite:
    Spruce
    Balsam
    Hemlock
    Chips
    For Ground Wood:
    Spruce
    Balsam

17. SULPHUR. This account is charged with all purchases, including freight and handling, and is credited with the amount used in the manufacture of Sulphite, leaving a balance representing inventory. Under this heading are included:

    Brimstone
    Pyrites

18. LIME. This account is charged with all purchases, including freight and handling, and is credited with the amount used in the manufacture of Sulphite, leaving a balance representing inventory.
19. LIMESTONE. This account is charged with all purchases, including freight and handling, and is credited with the amount used in the manufacture of Sulphite, leaving a balance representing inventory. Under this heading are included:

    Limestone
    Marble

(b) CONVERSION:

20. MANUFACTURING LABOR. This account is charged with the amount of Manufacturing Labor, including Superintendence transferred from the "Pay Roll—General" account. Distributed direct to Departments.
21. PULP STONES. This account is charged with all purchases, including freight and handling, and is credited with the amount of Pulp Stones used in the manufacture of Ground Wood, leaving a balance representing inventory.
22. MACHINE CLOTHING. This account is charged with all purchases, including freight and handling, and is credited with the amount used in the manufacture of Paper, Sulphite and Ground Wood, leaving a balance representing inventory. Distributed direct to Departments. Under this heading are included:

    1st, 2d, 3d Press — Dryer Felt Twine
    Dryer Felts — Jackets
    Cylinder Machine Felts
    Apron Cloth
    Deckle Cloth

23. WIRES. This account is charged with all purchases, including freight and handling, and is credited with the amount used in the manufacture of Paper, Sulphite and Ground Wood, leaving a balance representing inventory. Distributed direct to Departments. Under this heading are included:

    Fourdrinier — New Dandies
    Cylinder — Repairing Dandies

24. SCREEN PLATES. This account is charged with all pur-

MAINE COATED PAPER COMPANY

Mill and General Sales Offices: RUMFORD, MAINE

New York Office: ROOM NO. 1040, FIFTH AVENUE BUILDING

NEW YORK

MANUFACTURERS OF

POLAR WHITE

ALSO

Coated Lithograph, Covers and all Grades of Coated Book

AGENTS

Stone & Andrew, Inc., Boston, Mass.

Bermingham & Seaman Co.....Chicago, Ill. Bermingham & Seaman Co.....New York City

chases, including freight and handling, and is credited with the amount used in the manufacture of Paper, Sulphite and Ground Wood, leaving a balance representing inventory. Distributed direct to Departments. Under this heading are included:

New Plates — New Recuts
Blanks

25. BELTING. This account is charged with all purchases, including freight and handling, and is credited with the amount used in the manufacture of Paper, Sulphite and Ground Wood, leaving a balance representing inventory. Distributed direct to Departments. Under this heading are included:

All kinds of Rubber, Rope for Transmission
Leather and Miscellaneous Belting — Belt Hooks
Belt Lacing
Belt and Rope Dressing

26. LUBRICANTS. This account is charged with all purchases, including freight and handling, and is credited with the amount used in the manufacture of Paper, Sulphite and Ground Wood, leaving a balance representing inventory. Distributed direct to Departments. Under this heading are included.

Oils, Grease, Compounds } used in lubricating

27. FINISHING MATERIAL. This account is charged with all material and supplies purchased, including freight and handling, and is credited with the amount used in the finishing of Paper, leaving a balance representing inventory. Under this heading are included:

Twine — Flour
Dextrine — Rubber Tissue
Paste — Burlap
Glue — Band Iron
Wooden Cases
Lumber for Frames and Cases
Any other materials used in Finishing

28. REPAIR MATERIAL. This account is charged with all material and supplies necessary for maintaining the buildings, equipment and premises in good order and repair. This includes the ordinary small repairs and replacements, such as are occurring from day to day in the usual course of operation. The following are some of the more important items included:

Fire Brick — Packing
Digester Brick — Boiler Plates
Cement — Bolts
Sheet Lead — Water Gauges
Piping and Fittings — Rivets, Screws, Tacks,
Bed Plates — Nails, Nuts, and other
Asbestos Pipe Covering — small hardware
Gauges — Paints and Oils (except Lubri-
Solder — cants)
Tees — Hand Tools
Valves — Boiler Tubes
Shafting — Bushings
Electric Supplies (except — Fly-Bars
Lamps) — Jordan Fillings
Iron, Steel and — Grinder Flanges
other Metal — Barker Knives
Supplies — Chipper Knives
Hose — Cutter Knives
Pump Springs — Slitter Blades
Grindstones (not for — Deckle Straps
Pulp making) — Emery Wheels
Babbitt — Suction Box Tops
Cogs and Keys

Distribution to Paper, Sulphite and Ground Wood will be made as follows:

Such material items as can readily be assigned will be distributed direct to the departments.

Such material items as cannot be readily assigned direct to departments will be distributed on a tonnage basis.

The method of treating repairs of an extraordinary character is variable, some of the mills following a conservative policy and absorb the entire amount into operating during the fiscal year, while others follow a more liberal policy by giving such repairs a life of one, two or three years, carrying to operating a certain fixed amount each month. The Committee advises that the distribution of such class of repairs be left to the judgment of each individual, recommending the adoption of as conservative a policy as possible.

29. REPAIR LABOR. This account is charged with the amount of Repair Labor transferred from "Pay Roll—General" account. Distributed direct to Departments.

30. FUEL. This account will be charged with all Fuel purchased, including freight and handling, and will be credited with the amount of Fuel used in the manufacture of Paper, Sulphite and Ground Wood, leaving a balance representing inventory, and will be distributed to Paper, Sulphite and Ground Wood on the basis of an estimate of steam consumed. Under this heading are included:

Coal (Anthracite and Bituminous)
Wood
Gas
Oil
Waste

34. CORES. This account will be charged with all purchases, or, if cores are manufactured, the cost of manufacture; also with the freight on cores returned, and is credited with freight expense and with depreciation estimated on a percentage basis (the amount of such percentage to be determined by the individual mills), leaving a balance representing inventory. Under this heading are included:

New Iron Pipe for Cores
Paper for Cores
New Iron, Wood or Paper Cores

35. MISCELLANEOUS OPERATING. This account is charged with all materials and supplies not properly belonging to any of the classes already enumerated but used in operation of the mills, and will be distributed to Paper, Sulphite and Ground Wood on a tonnage basis. Under this heading are included:

Oil of Vitriol — Shovels
Electric Lamps — Brooms
Rubber Boots — Lanterns
Oil Cans — Pails
All other small tools not attached to or part of buildings, machinery or equipment.

36. POWER. If Power is purchased, this account is charged with all amounts paid for such Power, whether Electric, Steam or Water, and will be distributed to Paper, Sulphite and Ground Wood by a monthly charge to General Operating account on the basis of service rendered. If Power is produced at the plant, then the question of Fuel and other Conversion items included above must be considered in their relationship to Power development.

39. LIGHTING. This account is charged with all expenses and charges in connection with the lighting of the plant and distributed to Paper, Sulphite and Ground Wood on basis of services.

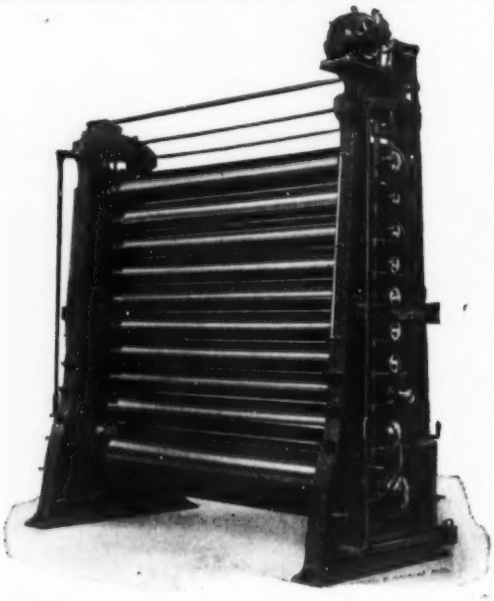
40. MILL OFFICE. This account will be charged with the salaries of mill office employes for the month and with all expenses necessary to maintain the mill office and *such only*, and is distributed to Paper, Sulphite and Ground Wood on a tonnage basis.

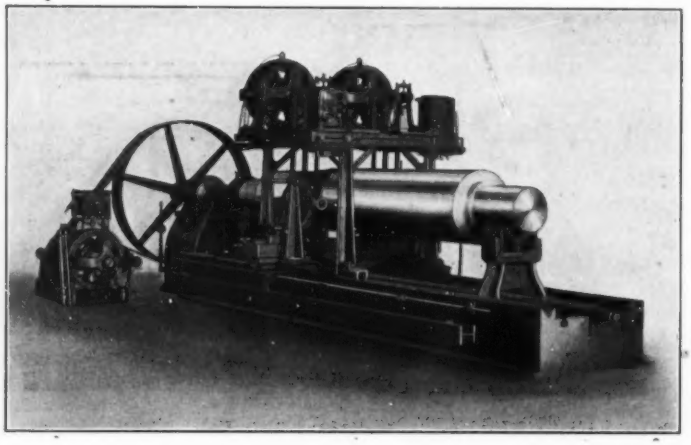
Three Requisites for Up-to-Date Paper Mills

Chilled Roll CALENDERS

Furnished complete. Fitted with patent
ELECTRIC MOTOR LIFT
HYDRAULIC LIFT
or RATCHET LIFT

All operated from floor





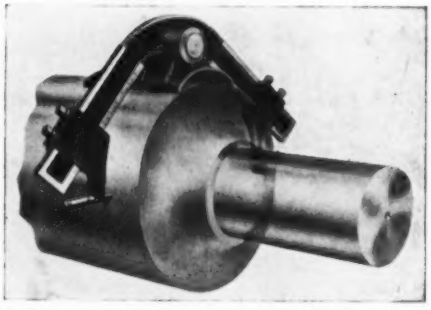
Roll Grinding Machine

PROVIDED WITH

Patent Automatic Crowning Device

EFFICIENT

Micrometer Caliper



CORRESPOND WITH

Lobdell Car Wheel Co.

Wilmington, Delaware

41. BARN OR TEAMING. This account will be charged with all materials used in maintaining barns, vehicles, horses, harness and all other similar equipment including:

Feed	Medicines
Shoeing	Tools
Veterinary Services	Supplies

and is distributed to Paper, Sulphite and Ground Wood on the basis of service rendered.

42. SWITCHING. This account will be charged with all expenses connected with switching and distributed on basis of service.

(c) BURDEN:

43. TAXES. This account is charged with all amounts paid for State, County and Town Taxes, and will be distributed to Paper, Sulphite and Ground Wood on a tonnage basis by a monthly charge to the General Operating account.

44. INSURANCE. This account is charged with all premiums paid on Insurance for Fire, Accident and Employers' Liability, and is distributed to Paper, Sulphite and Ground Wood on a tonnage basis by a monthly charge to the General Operating account.

45. RENT. This account is charged with all amounts paid as rental of grounds and of buildings leased for manufacturing purposes, and is distributed to Paper, Sulphite and Ground Wood on a tonnage basis by a monthly charge to General Operating account.

46. INTEREST ON BONDS AND OTHER OBLIGATIONS. This account is charged with all amounts paid for interest on Bonds and Other Obligations, and credited with the amount of cash discounts received on purchases, and is distributed to Paper, Sulphite and Ground Wood on a tonnage basis by a monthly charge to General Operating account.

47. GENERAL AND ADMINISTRATION EXPENSES. This account will be charged with all amounts paid for Expenses and Administration and General Expenses, and will be distributed to Paper, Sulphite and Ground Wood on a tonnage basis by a monthly charge to General Operating account. Under this heading are included:

Salaries of General Officers	Telephone and Telegrams
Salaries of Clerks	Postage
Rent of Office	Stationery and Office Supplies
Traveling Expenses other than Selling	Legal Services General

This account, therefore, includes all items not included under "Selling Expenses."

48. RESERVE FOR DEPRECIATION AND OBSOLESCENCE. It has come to be recognized by cost accountants that a reserve for depreciation and replacement of plant and machinery is properly an item to be included in costs. Depreciation is not a disposition of part of the profits, but an expense to be overcome before profits can be determined. The loss of value due to depreciation is undoubtedly the most difficult of all expenses to accurately measure in figures, for the reason that there are so many elements to be taken into consideration.

In view of the varying conditions existing at the several mills, this Committee does not attempt to formulate any fixed rate to be adopted, but recommends that a fair percentage of depreciation be determined by the individual mills, stating in their reports the basis used, which will be distributed to Paper, Sulphite and Ground Wood on a tonnage basis by a monthly charge of one-twelfth of the amount so determined to General Operating account. This method gives a fixed amount to be charged off monthly, without regard to the actual output for the month.

Distribution on Tonnage Basis

It will be noted that this Committee advocates the distribution of Burden Expense on a tonnage basis. Paper and Sulphite would be figured as being similar in tonnage, and Ground Wood on the basis of one-half of the amount of the other two classes. This Committee adopted this method after giving serious consideration to the fact that some mills would prefer to distribute such items as taxes, insurance and rent to the departments in the proportion to actual or estimated property values, or on other bases that to the individual mills might seem proper. The Committee, however, feels that the tonnage basis would prove more satisfactory as a uniform basis for all mills to adopt. By "tonnage" basis it will be understood that consideration was given to the normal output, rather than maximum capacity.

It will also be noted that discount received on purchases is treated as a credit to "Interest and Discount." It follows, therefore, that all purchases will be charged to operations at the gross billing price, less the usual trade discounts, and cash discounts will be credited as above. Discount on sales will be treated as one of the settlement charges to be deducted from gross sales as discussed later.

Cost Sheets

The information developed by the foregoing accounts will be assembled on Cost Sheets for each product (as set forth on the following forms). It will be noted that the result of these Cost Sheets is the manufacturing cost of the product f.o.b. mill. To these sheets may be added such statistical information as in the opinion of the officials of a plant may be desirable for their information. In our opinion, these forms are developed in sufficient detail to give the mill superintendent and others interested all the information necessary for their purpose, the matter of Sales, Cost of Selling and Profit should be treated as subjects entirely distinct from Cost of Manufacture.

In case it is desired to show Wood Room Costs as a separate and distinct feature a further department for Wood Room Operations may be introduced, together with a suitable form of Cost Sheet, the only requirement being a further distribution of the following classifications:

Manufacturing Labor, Belting, Lubricants, Repair Material, Repair Labor, Fuel Coal, Oil, Wood, Waste, Power, Lighting, Barn or Teaming.

The total will give the cost of preparing wood and divided by the cords prepared will give the cost per cord. The total value is charged to Prepared Wood, together with the cost of rough wood, and this account is charged to Ground Wood or Sulphite, according to quantity used.

In adopting the attached form of Cost Sheet for Paper, this Committee calls attention to the necessity of a uniform method of recording the information it contains. It is important that all Stock or Furnish be included at actual weight. It comes to the attention of the Committee that a number of manufacturers use "bone dry" weights for Ground Wood and Sulphite. This is hardly a correct basis, since the paper produced carries 4½ per cent. to 5 per cent. of moisture and such basis cannot help but result in a constant variation. By the use of actual weights (air dry) the manufacturer is enabled to obtain the percentage of stock used in production and, particularly, the loss in yield quite free from matters of estimate. In the opinion of the Committee these percentages and the quantity used per ton of production are all even of greater value to the mill superintendent than the dollars and cents cost of each item of Stock used and the Conversion Expenses.

This Committee recommends that the Stock consumed be based on 100 per cent. of production by all manufacturers; percentage of Stock consumption being the percentage that the amount of Stock consumed bears to the amount of finished product; loss in yield being the difference between consumption and production.

WE SAID LAST YEAR

NEWPORT ROSIN

WILL SHOW YOU

SIZE ECONOMY

BECAUSE OF ITS

Absolute Cleanliness
Uniformity
Low Package Tare

Extensive practical tests by many of the Largest and Most Progressive Paper Manufacturers have led to the adoption of NEWPORT ROSIN, to replace their former requirements of "E" and "F" Rosin, produced by antiquated methods.

This year's record is

A TREBLED PRODUCTION

Six Times the Volume Going to Paper Mills

There are several reasons.

General Naval Stores Company

175 FRONT STREET, NEW YORK

Sales Offices also at

CINCINNATI
F. A. Niemeier & Co.
Lyric Bldg.

CHICAGO
General Naval Stores Co.
McCormick Bldg.

PITTSBURGH
F. A. Niemeier & Co.,
328 Diamond St.

COST OF MANUFACTURING NEWSPRINT PAPER.

Production .....tons
Daily average ..... "
Normal production ..... "
For month ended ....., 19...
Basis 2,000 pounds

Material and Labor.	Consumption. Quantity Used (Lbs.).	Average Price.	Total Cost.	Cost Per Ton	Quantity Used Per Ton Production (Lbs.).	Per Cent. of Stock Used Per Ton Production (%).
Stock:						
Sulphite—Own make	.....	$.....	$.....	$.....	.....	.....
Sulphite—Purchased	.....	.....	.....	.....	.....	.....
Ground wood—Own make	.....	.....	.....	.....	.....	.....
Ground wood—Purchased	.....	.....	.....	.....	.....	.....
Sundry fibres	.....	.....	.....	.....	.....	.....
Waste paper	.....	.....	.....	.....	.....	.....
Wrappers	.....	.....	.....	.....	.....	.....
Fillers	.....	.....	.....	.....	.....	.....
Alum	.....	.....	.....	.....	.....	.....
Bleaching	.....	.....	.....	.....	.....	.....
Color	.....	.....	.....	.....	.....	.....
Sizing	.....	.....	.....	.....	.....	.....
Total stock	.....	....	$.....	$.....	.....	.....
Conversion:						
Manufacturing labor			$.....	$.....		
Machine clothing			.....	.....		
Wires			.....	.....		
Screen plates			.....	.....		
Belting			.....	.....		
Lubricants			.....	.....		
Finishing material			.....	.....		
Repairs—Material			.....	.....		
Repairs—Labor			.....	.....		
Fuel—Coal			.....	.....		
Fuel—Oil			.....	.....		
Fuel—Wood			.....	.....		
Fuel—Waste			.....	.....		
Cores			.....	.....		
Miscellaneous operating			.....	.....		
Water rent			.....	.....		
Power—Electric			.....	.....		
Power—Steam			.....	.....		
Lighting			.....	.....		
Mill office			.....	.....		
Barn or teaming			.....	.....		
Switching			.....	.....		
Total conversion			$.....	$.....		
Total stock and conversion			$.....	$.....		
Burden expenses:						
Taxes			$.....	$.....		
Insurance (fire, accident and employers' liability)			.....	.....		
Rent—Real estate and building			.....	.....		
Interest on bonds and other obligations			.....	.....		
General and administration expense			.....	.....		
Reserve for depreciation			.....	.....		
Total burden expenses			$.....	.....		
Total cost f. o. b. mill			$.....	$.....		

Inventory finished product—beginning ..... Tons
Production for month..... .....
Sales during month..... ..... Tons
Inventory finished product—end .... Tons

Working days .....
Sundays .....
Holidays .....
Days run (24 hrs. actual)...
Days lost (24 hrs. actual)...

COST OF MANUFACTURING SULPHITE.

Production .....tons
Daily average ..... "
Normal production ..... "
For month ended ....., 19...
Basis 2,000 pounds

Material and Labor.	Consumption. Quantity.	Price.	Total Cost.	Cost Per Ton.	Yield Per Cord (Lbs.).	Quantity Used Per Ton Production (Lbs.).
Stock:						
Sulphur	....Lbs.	$....	$.....	$.....		.....
Lime	.... "	....	.....	.....		.....
Limestone	.... "	....	.....	.....		.....
Prepared wood—Spruce	....Cords	....	.....	.....	.....	
Prepared wood—Balsam	.... "	....	.....	.....	.....	
Prepared wood—Hemlock	.... "	....	.....	.....	.....	
Prepared wood—Chips	.... "	....	.....	.....	.....	
Total stock	.....	$.....	$.....	$.....	.....	.....
Conversion:						
Manufacturing labor			$.....	$.....		
Machine clothing			.....	.....		
Wires			.....	.....		
Screen plates			.....	.....		
Belting			.....	.....		
Lubricants			.....	.....		
Repairs—Material			.....	.....		
Repairs—Labor			.....	.....		
Fuel—Coal			.....	.....		
Fuel—Oil			.....	.....		
Fuel—Wood			.....	.....		
Fuel—Waste			.....	.....		
Miscellaneous			.....	.....		
Water rent			.....	.....		
Power—Electric			.....	.....		
Power—Steam			.....	.....		
Lighting			.....	.....		
Mill office			.....	.....		
Barn or teaming			.....	.....		
Switching			.....	.....		
Total conversion			$.....	$.....		
Total stock and conversion			$.....	$.....		
Burden expenses:						
Taxes			$.....	$.....		
Insurance (fire, accident and employers' liability)			.....	.....		
Rent—Real estate and buildings			.....	.....		
Interest on bonds and other obligations			.....	.....		
General and administration expense			.....	.....		
Reserve for depreciation			.....	.....		
Total burden expenses			$.....	$.....		
Total cost f. o. b. mill			$.....	$.....		

Inventory finished product—beginning ..... Tons
Production for month..... .....
Sales during month..... ..... Tons
Inventory finished product—end .... Tons

Working days .....
Sundays .....
Holidays .....
Days run (24 hrs. actual)...
Days lost (24 hrs. actual)...

COST OF MANUFACTURING GROUND WOOD.

Production .....tons
Daily average ..... "
Normal production ..... "
For month ended ....., 19...
Basis 2,000 pounds

Material and Labor.	Consumption. Quantity (Cords).	Price.	Total Cost.	Cost Per Ton.	Yield Per Cord (Lbs.).
Stock:					
Prepared wood—Spruce	.....	$.....	$.....	$.....	.....
Prepared wood—Balsam	.....	.....	.....	.....	.....
Total stock	.....	$.....	$.....	$.....	.....
Conversion:					
Manufacturing labor			$.....	$.....	
Pulp stones			.....	.....	
Machine clothing			.....	.....	
Wires			.....	.....	
Screen plates			.....	.....	
Belting			.....	.....	
Lubricants			.....	.....	
Repairs—Material			.....	.....	
Repairs—Labor			.....	.....	
Fuel—Coal			.....	.....	
Fuel—Oil			.....	.....	
Fuel—Wood			.....	.....	
Fuel—Waste			.....	.....	
Miscellaneous			.....	.....	
Water rent			.....	.....	
Power—Electric			.....	.....	
Power—Steam			.....	.....	
Lighting			.....	.....	
Mill office			.....	.....	
Barn and teaming			.....	.....	
Switching			.....	.....	
Total conversion			$.....	$.....	
Total stock and conversion			$.....	$.....	
Burden expenses:					
Taxes			$.....	$.....	
Insurance (fire, accident and employers' liability)			.....	.....	
Rent—Real estate and buildings			.....	.....	
Interest on bonds and other obligations			.....	.....	
General and administration expense			.....	.....	
Reserve for depreciation			.....	.....	
Total burden expenses			$.....	$.....	
Total cost f. o. b. mill			$.....	$.....	

Inventory finished product—beginning ..... Tons
Production for month..... .....
Sales during month..... ..... Tons
Inventory finished product—end .... Tons

Working days .....
Sundays .....
Holidays .....
Days run (24 hrs. actual)...
Days lost (24 hrs. actual)...

Sale Price for Paper

While the expense of selling and the determining of a justifiable sale price do not enter in any way into the cost of manufacturing,

NEBEN DECORATIVE CREPE PAPER AND NAPKINS THE FINEST IN THE WORLD

NEBEN DOUBLE SAFETY CHECK PAPER AND TRADE-MARK PAPERS

NEBEN HIGH GRADE DECORATIVE WALL PAPER

NEBEN DECORATIVE AND EMBOSSED, PAPER AND BOX BOARD STOCK FOR FANCY BOXES ETC.

NEBEN HIGH GRADE STATIONERY IN ALL SHADES AND COLORS

NEBEN STRIPED AND COLORED WRAPPING PAPER

THE PRODUCTION OF OUR NEBEN FIBRES ARE STRICTLY AND IMPRESSIVELY ORIGINAL

NEBEN NEBEN

DECORATIVE CREPE PAPER

TRADE MARK

Oriental crepe tissue papers, in variegated colors, pleasingly blended.

Cretonne crepe tissue papers, in variegated colors and fancy printed designs.

Fabriklike crepe tissue papers, in all colors, and printed in fancy designs.

Crepe tissue papers, plain white and plain solid colors, in all colors.

PATENTED AND MANUFACTURED BY

THE NEBEN MANUFACTURING CO. INC.

127-137 Beekman Street, NEW YORK, U.S.A.

ANNOUNCEMENT

We beg to inform the general paper industry of the U. S. and Canada, that the above product is patented and manufactured by the Neben Mfg. Co., inc.

The above products will be known and sold under the trade mark "NEBEN."

The "Neben" products will be marketed throughout the world by paper jobbers, fancy stationery manufacturers, jobbers, wall paper and fancy paper jobbers, boxboard manufacturers and jobbers.

We, the undersigned, cordially solicit your patronage, and extend to you an invitation, when in New York City, to visit our Home office and show rooms at 127-137 Beekman Street, New York City.

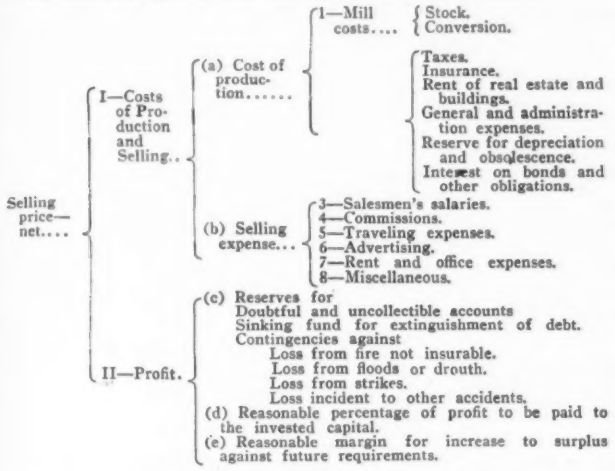
E. T. NEBEN, Manager. Very truly yours,

F. C. RISSELT, Sales Mgr. NEBEN MFG. CO.

this Committee deems it wise to direct the attention of the manufacturers to the important elements which should be considered in fixing the sale price.

The basis for such sale price will be cost of production, plus expense of selling and profit.

The following summarizes the several elements in detail:



The Net Selling Price represents the gross sale price less all settlement charges which include:

Discounts on Sales
Allowances for Claims
Out Freight, Cartage and Storage.

Basis for Transfer of Pulp

All transfers made of Sulphite and Ground Wood to Paper should be upon the basis of actual cost of manufacturing.

Period for Calculating Costs

All costs of manufacturing should be calculated upon the completed operations for the calendar month and not upon the basis of weeks.

Salvage

Material which has been used and later replaced and which has no real production value should be sold as "waste material" and ignored entirely in the cost work. The proceeds of such sales will appear as an item under "Miscellaneous Income" in the Profit and Loss account.

Paper in Storage

This Committee suggests that all paper carried either in storage at mill or shipped for future delivery be included in the inventory at manufacturing cost plus storage, cartage and freight on such paper.

Wood

This Committee recommends that

(1) Wood purchased in open market should include, in addition to its first cost, all expenses of freight and handling to the piling ground.

(2) Wood cut from own lands should be charged into Costs at a conservative market value—any profit accruing to be credited as income from investments.

(3) All yard expenses of unloading wood from cars or booms to piling ground should be treated as an element of cost of wood.

This Committee has also given consideration to the subject of Wood Shrinkage and Yield, with a view of presenting a proper method of computing the same and formulating a standard table for the guidance of manufacturers. They found, however, that since there is such a wide discrepancy in the estimates of loss from rough to rossed wood, and the number of pounds of Ground Wood or Sulphite produced from a cord of rough or rossed wood as reported by individual mills, this was not possible, and they feel that before a standard yield can be determined upon a thorough investigation should be made by each mill into its system of computing Wood Shrinkage and Yield. This is fundamental, and unless the figures used in respect to Shrinkage and Yield are as accurate as possible, and unless the same method of computation is used by all mills, it becomes impossible to develop costs that will in any measure be uniform. Actual measurements, weights and tests should be substituted for the present methods.

General

The merit of the system outlined above is its extreme simplicity, directness in arriving at results and the providing of data both as to quantities and values for the development of all statistical information required; all at a minimum expenditure of time and effort.

The work of developing the costs progresses with the regular routine of the accounting and at the end of the month upon closing the books the work in connection with the costs, save in respect to the statistical features, closes automatically.

Through the use of a few controlling accounts upon the General Ledger for the purpose of development of costs the financial result of the business is much more readily determined at any period than by the more usual methods favored of encumbering the Ledger with many miscellaneous material and supply accounts.

This Committee recommends that a standing committee be appointed, to be known as the "Committee on Uniform System of Accounting," and with whom the accounting representatives of the several members of the Association may freely advise.

This Committee, further, respectfully suggests that John R. Loomis (of the firm of Loomis, Suffern & Fernald, Certified Public Accountants) be retained by the Association, and that his services be placed at the disposal of the members in an advisory capacity with regard to the working out of the standard system of costs as is herein outlined, the expenses of such services to be borne by the Association.

WORK BEING RUSHED AT JOHN STRANGE PLANT

Work is being rushed at McDill, Wis., the site of the proposed new pulp mill of the John Strange Paper Company. E. G. Goodell, of New Orleans, who has been secured by Mr. Strange to have full management of the plant and to supervise the work of remodelling the buildings now on the property, announced last week he expects the new plant will be ready for operation some time in July. All the machinery has been ordered and the first of it is expected to arrive about the middle of the coming month. The plant will have a daily capacity of twenty tons of pulp. Work on the new brick buildings will be started as soon as the weather permits. One of the buildings will be 150 x 50 feet and two stories high. Whether or not the company will go ahead at this time with the plans for the erection of a paper mill cannot be stated at this time. It is said to be doubtful, however, if this project will be undertaken until the pulp mill has been in operation at least a year. The plans for raising the head of the dam have also been abandoned, according to Mr. Goodell. Although roads have been in bad condition owing to frequent and unusually heavy snow storms this winter, farmers living in a radius of fifteen miles of the new plant are hauling a lot of pulpwood. It is said the company will have at least several thousand cords of wood on hand by spring as a result of industry shown by farmers of the surrounding country. It is said there is pulpwood enough almost within the proverbial "stone's throw" of the plant to keep the mill in operation several years. In these days of car shortage and inability to handle that sort of business, this is considered a mighty important item.

Makers of Papers of Strength

Cylinder, Fourdrinier and M. G. Products
From Pure, Slow Cooked Mitscherlich Sulphite

DETROIT FIBRE

Range of Weights 24 x 36-10 to 350
In Bleached, Natural and Colors

Detroit Sulphite Pulp & Paper Co.

Detroit Michigan

Canadian Pulp and Paper Association Meet

New Addition to By-Laws Says the Organization Will Not Consider or Engage in Regulation of Prices of Products, the Restriction of Territory, or the Restriction of Output—Capt. J. H. A. Acer, Retiring President, Who Has Joined Oversea Forces, Given Enthusiastic Reception

At the annual meeting of the Canadian Pulp and Paper Association, held in Montreal Wednesday of last week, there was a large attendance of members, almost every important mill in the country being represented. The retiring president, Capt. J. H. A. Acer, was present, and was warmly welcomed by the members. Capt. Acer has joined the Overseas Forces, and has been away from the city for some time undergoing the necessary training prior to embarking for Europe. On retiring from the presidency,

C. Howard Smith.

a hearty vote of thanks was given him, and best wishes expressed for his future.

C. Howard Smith Elected President

For the ensuing year C. Howard Smith, president of the Howard Smith Paper Mills, Ltd., of Montreal, was elected president, and F. H. Anson, of Montreal, president of the Abitibi Power & Paper Company, was elected vice-president.

The following important additions were made to the by-laws of the Association: "The Association shall not consider nor engage in the regulation of prices of products, the restriction of territory, or the restriction of output."

Also: "The annual dues from members shall be as follows—$50 from all members, and in addition the following assessments on the normal annual quantity of product available for sale: One mechanical pulp, ¼ cent per ton; chemical pulp, newsprint, board, wrapping, sheathing and miscellaneous, ½ cent per ton; on book papers, 3 cents per ton; on writing, coating and tissue papers, 5 cents per ton."

Mr. Campion Reports for News Section

A. G. Campion, chairman of the News Section, in his report for the year, said that every mill was overfilled with tonnage and orders and contracts are having to be turned down because of inability to fill them. In almost every instance in renewing contracts for 1917 they had had to restrict the tonnage to last year's basis, although extra tonnage had been invariably asked for. He figured the Canadian production of newsprint east of the Rockies was 2,000 tons per day and the Canadian consumption of 390 tons per day, or 19 per cent. of the total Canadian production. These figures showed a tonnage of 500,000 tons per year to be exported. Of this, 420,000 tons, or 84 per cent., went to the United States, leaving about 80,000 tons per year for overseas markets. The prices had been extremely irregular and unsatisfactory during the past year; prices of raw materials and all supplies had increased to such proportions as to make the year a very unsatisfactory and unprofitable one for the newsprint manufacturers Mr. Campion mentioned the difficulties in the early part of the year in connection with getting wires and the generous assurances which the wire manufacturers later gave them. He also said there had been some correspondence with the Government relating to extending the export of newsprint to British Dominions overseas, but said nothing further could be done because of lack of tonnage.

Mr. Riordon Reports for Sulphite Section

Carl Riordon, of the Riordon Pulp and Paper Company, in his report of the Sulphite Section, mentioned that the United States paper mills now had to depend more on Canadian sulphite than at any time before, and they looked for a still more marked demand in the late winter and beyond. He said the construction of new sulphite plants and plans for construction of new mills in Canada was simply enormous. On October 20 last a new list secured gave a new production in anticipation of 900 tons daily in Canada and the United States, and this has since been increased to 1,300 tons daily, all of which, excepting two mills, were for ordinary news sulphite and kraft. There was also a large projected increase in the manufacture of paper in Canada, which in a measurably short time would largely consume the increased tonnage of sulphite. He predicted that Canada would shortly become the leading producer of sulphite, and recommended the production of higher grades and drying instead of wet pressing. The 13 mills now exporting production had a production of 1,000 tons per day, of which 475 was used in the mills, 100 tons sold in Canada, 300 sold to the United States, and 125 sold abroad.

Mr. Bothwell Reports for Mechanical Section

J. A. Bothwell, in a report of the Mechanical Pulp Section, said there had not been any shortage so far in mechanical pulp, but owing to the demands for sulphite, an excessive percentage of mechanical pulp had been used, causing an active demand and fairly high prices. He predicted a material shortage of pulp wood during the coming season, owing to the scarcity of men and the excessive snow in the woods; in fact, there was little doubt that mills purchasing their entire wood supply were going to find themselves shut down, for want of pulpwood, by September 1 next. Some measure of relief in the situation would be experienced as soon as the chemical mills now in course of erection were completed.

Dr. John S. Bates reported that the Technical Section had

Oxford Paper Company

FIFTH AVENUE BUILDING 200 FIFTH AVENUE

NEW YORK

Manufacturers of

Super Calendered and Machine Finish

Book and Lithographic Papers

Also

Bleached Spruce Sulphite and Soda Pulp

CAPACITY OF MILL:

250 Tons of Paper Per Day Sulphite, 110 Tons Soda, 135 Tons

MILLS: RUMFORD, MAINE, U. S. A

proved very successful and helpful. It now had a membership of 85, and it was a striking fact that only 30 per cent. of these were Canadian born. He spoke of the need of co-operation in all technical problems, and said the Technical Section should become the clearing house for the discussion of problems.

Ellwood Wilson reported on progress in matters of forest protection; I. H. Weldon, on the Book and Writing Section; J. F. Taylor, on the Board Section; and E. R. Pepin, on the Felt Section.

Mr. Huff on Transportation Matters

A. D. Huff, in a report on transportation matters, expressed surprise at the fact that the Railway Commission had granted the railways practically all they asked for in the way of increased rates, saying the net result was that the members of the Association were now saddled with increased rates on raw materials and manufactured products, many of which were unreasonably excessive and unjustified. The combined increases would be equivalent to over 50 cents per ton on car lots of news-print and a greater increase in the higher grades and less car lot shipments. He reported, however, that as a result of the Association's protest the proposed increased rates on pulpwood were suspended and were still under consideration. Referring to the increased demurrage charges on cars, he said the extra rates had shown that shippers were not using the cars as warehouses, for the car shortage now was infinitely worse than when the higher charges were imposed. The principal cause was lack of motive power, as a result of which cars were only being moved an average daily mileage of one-quarter of the normal, while every terminal was blocked to suffocation. The fact that Canadian roads would not permit their cars to go to the States, and could not or would not get sufficient foreign equipment to handle the export business had resulted in a serious situation for the pulp and paper mills, and pending legislation regarding the interchange of foreign equipment, the situation would probably get worse. Meanwhile mills were hourly facing the prospect of having to shut down for want of coal and other raw materials, while want of cars to load the manufactured product kept newspapers in daily fear of having to suspend publication. He complained that while railways had been concentrating their energies for years on increasing revenue, and were now getting millions of dollars a year extra as a result of increases granted, no supervision seems to have been exercised by the Railway Commission as to how these extra millions were expended, with the result that the annual expenditures for maintenance and renewals had steadily fallen off in the face of increased traffic. He described the conditions existing as terrible and hoped the Railway Commission would in future give more consideration to the rights of the public in transportation. Unless a marked improvement were effected at once the pulp and paper industry would be greatly endangered and its prosperity jeopardized.

Roy Campbell, the secretary, presented a report showing surplus cash of $3,207. He spoke of the prosperity of the Association and mentioned that it was now proposed to have offices of their own and the full time of the secretary.

Have Not Raised Prices Unfairly

C. Howard Smith, the new president, in the course of a speech, said he was glad the pulp and paper manufacturers of Canada had not taken advantage of the great demand for their products to raise prices to an unjust level. The prices on paper in Canada today were lower than in any other country in the world, and this notwithstanding that the capital cost of paper mills in Canada was considerably higher than in other countries, owing to the fact that practically all paper mill machinery is imported and pays a duty of 35 per cent.

As Roy Campbell resigned the secretaryship to take up an important position with the Riordon Pulp and Paper Company, a new secretary was elected in the person of A. L. Dawe.

HEMLOCK MAY BE GOOD SUBSTITUTE FOR SPRUCE PULP

Hemlock as a suitable and satisfactory substitute for spruce in the paper mills in and about Watertown, N. Y., seems to be the promise of the Hall Process Company, with offices located in the Smith Block, Watertown, N. Y. This announcement comes as a pleasing prospect to the already worried manufacturers, who are grasping for every stick of wood accessible for pulp purposes.

Thomas Ward and I. H. Copeland, special representatives of the local concern, have just returned from a seven weeks' trip into the far west. While there they supervised the installation of the Hall process in the Crown-Willamette Pulp and Paper Company mills at Portland, Oregon. The latter part of their trip was devoted to pleasure, and a visit was made to San Francisco and various points along the return route

In speaking of the pulp wood situation out there the feature of hemlock pulp was mentioned by these men. This wood is cheaper and differs in fibre and size from the spruce used here. They use it there, and the process was adopted there to grind this wood. The contracts for pulp wood out there offer an amusing feature for local manufacturers. They provide that hemlock logs must not exceed eight feet in diameter, and such logs reach the entire length of a car. Larger logs are rejected because the saw mills are not adapted to handle them.

The hemlock pulp is somewhat different than spruce. It has been necessary to mix it with spruce, but it gave a reddish cast to the pulp. It is claimed that the new process does away with much of the objectionable features. It gives a stronger pulp than spruce when properly prepared. Experiments are now under way in the Watertown mills of the Taggart Paper Company, and with the success assured much relief will be afforded the paper makers who are forced to Canada for spruce pulp wood supply. There is much hemlock in the woods on this side that can be utilized, and the installation of specially prepared stones is expected to enhance its popularity and value. Many of the mills in this section are equipped with the Hall process.

MATTAGAMI MILL TO BE STARTED IN JUNE

One of the most important mill developments of the past year in Canada has been that of the Mattagami Pulp and Paper Company, located a few miles west of Cochrane, in Northern Ontario, the most northerly location so far of any Canadian mill. The mill, a picture of which is shown elsewhere in this issue, is now nearing completion and will be operating by the first of next June.

The construction is being carried on under S. R. Armstrong, the new general manager, and the first unit now in hand is designed for a daily capacity of 150 tons of sulphite fibre, bleached and unbleached. The general design, both of mill and equipment, covers the most modern features.

While the first hydraulic development is designed for 9,000 h.p., additional water powers are in reserve for future development.

The timber limits are tributary to the mill by easy water drive, and combine 125 square miles of freehold and 840 of leasehold properties.

The company is developing its own townsite at Smooth Rock Falls, a few miles north of the National Transcontinental Railway, to which it operates a line of its own.

The head office of the company is in Toronto, where it is represented by Duncan Chisholm, president, and S. R. Armstrong, general manager.

AS a result of ideals persistently pursued over a quarter of a century, The Oval Wood Dish Company stands in a relationship to the jobbing trade of North America which is vastly more important than merely the relationship of a seller to a buyer. A friendly and generous attitude is reenforced by the constant conservation and protection of the customer's interests. Not only must an O W D jobber be satisfied, **but** his customer must be satisfied with O W D goods, to the end that The Oval Wood Dish Company may be a factor in the upbuilding of permanent prosperity for both jobber and retailer.

The Oval Wood Dish Company

DELTA, OHIO

New York	San Francisco	New Orleans
100 Hudson Street	146 Davis Street	Whitney Central

O W D Oval Wood Dishes
"Riteshape" Wood Dishes
Wire End Wood Dishes
Mapleware Lunch Sets
Maple Comport Ice Cream Dishes
All Sizes Clothespins

SAFETY SECTION HAS BIG MEETING

First Gathering in New York Is One of Features of Convention Week of American Paper and Pulp Association

Two Meetings Are Held at Which Thoroughly Instructive Papers Are Read—Round Table Conference at Which Problems of General Interest Are Discussed Closes Final Meeting — S. F. Shattuck, Treasurer of the Kimberly-Clark Company, of Neenah, Wis., Presides as Chairman of the Meetings.

Another feature of the Convention which was indicative of the broadening interests of the Association was furnished by the Paper and Pulp Section of the National Safety Council, which held two thoroughly instructive meetings. Six papers were read, three at each meeting, and general discussion of each subject followed.

The section closed its last meeting with a round table conference on problems of general interest which brought forth plenty of live discussion, and was perhaps the most satisfactory part of the entire program.

The next meeting of the Paper and Pulp Section will take place at the time of the annual convention of the National Safety Council, which is to be held next September.

The first session was held Tuesday afternoon at 2 o'clock, with S. F. Shattuck, treasurer of the Kimberly-Clark Company of Neenah, Wis., presiding as chairman. Mr. Shattuck made the chairman's report and A. G. Pounsford, of the Ontario Pulp and Paper Manufacturers' Safety Association of Toronto, reported as secretary.

Mr. Shattuck Made the Following Report

As chairman of the Paper and Pulp Section of the National Safety Council, it is a pleasure to respond to this invitation of your secretary to participate in this meeting with a report on the work and purposes of this section of the council, which has been drawn, as it should be, into such close fellowship with the American Paper and Pulp Association.

What the National Safety Council Is

First, a word of explanation as to the National Safety Council: This organization was originated some five years ago by men connected with the more hazardous occupations and fathered by such big souls as Ralph Richards, of the North Western; R. J. Young, of the Illinois Steel, and others. The purposes of the Council have now jumped the boundaries of industry, the aim now being to reach every man, woman and child in the United States with the safety idea, and to promote the spirit of democracy, friendliness and co-operation among its members, and cultivate enthusiasm and loyalty in men for honest and productive safety work.

Paper and Pulp Section Formed

When it was found, at the annual congress of the National Safety Council in the Fall of 1915, that thirty-six paper and pulp companies were affiliated, there was formed an autonomous section thereof, known as the Paper and Pulp Section.

The directors and executive committee of the National Safety Council have constantly advocated the value to the accident prevention cause of the trade associations, represented by the several sections, becoming interested in the work of the section, and the officers of our section can bear testimony to the splendid spirit of co-operation with which we were met in our approach to the officers and secretary of the American Paper and Pulp Association.

The sectional officers and members are, in theory, at least, specialists in safety, and they can bring to the general membership of the trade association the best and most up-to-date experience in accident prevention peculiar to the industry. This can be done at special meetings such as we have had during the progress of this convention, through the distribution of bulletins, through the prooceedings of the National Safety Council's annual congress, etc.

A trade association such as the American Paper and Pulp Association is organized to deal with the commercial relations of the trade, and certainly no trade association in the United States has yet developed an accident prevention bureau of the same scope or value as the several sectional organizations of the National Safety Council.

Functions of the Section

The functions of our section are at present:

1. The Program Committee, the results of whose work, under the chairmanship of Mr. Calvert, of the Scott Paper Company, have been in evidence during the past two days.

2. The Membership Committee under the leadership of Mr. Garrett Schenck, Jr., of the Great Northern Paper Company. At the present time there are enrolled in the membership of this section 152 paper and pulp concerns, but in view of the importance of the safety movement, and the advantages to be gained therefrom the number should be far greater. That it is not greater is in no way the fault of your secretary, Mr. Naylor, who from the first grasped the significance of this work and lent his enthusiastic efforts to the Membership Committee of our section.

It is a significant fact that through the co-operation above referred to, over 100 companies have been added to the membership of the section in a little over twelve months.

3. Committee on Human Relationships, G. W. Phillips, of the Champion Fibre Company, chairman, whose duty is to gather up and disseminate information, so much in demand these days, regarding benefit associations, pension plans, and all other features and functions which make for better and more harmonious personal relationships within our several companies.

4. G. W. Williamson, of the Strathmore Paper Company, is serving as chairman of a committee whose work has been in evidence through the bulletin service of the National Safety Council. Williamson and his committee have been instrumental in turning out some very effective bulletins, relating specifically to the hazards of the paper and pulp industry; and more are to follow.

5. At the annual congress of the National Safety Council in Detroit last October, a fifth committee was added, namely, a committee on Safe Practices, whose duties are to produce from time

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NO. 20

Here's the Best Rag Cutter for Fine Cutting Ever Made
Capacity All You Can Feed to it.
Stock Can Be Cut Fine as Desired.
Automatic Apron Feed Easy to Adjust
Built to Last a Lifetime
FOURTEEN ADDITIONAL STYLES AND SIZES

OF GIANT CUTTERS

EVERY CUTTER BUILT TO BE AN ADVERTISEMENT

OF GIANT QUALITY

SOLD TO DO A SPECIFIED SERVICE
GUARANTEED TO DO THAT SERVICE

LET US KNOW WHAT YOU CUT AND HOW MUCH, AND WE WILL SHOW YOU HOW A GIANT WILL SAVE YOU MONEY.

Waterous Engine Works Co., Ltd., Brantford, Ontario, Can. Canadian representatives

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to time leaflets dealing more technically with certain classes of hazards, such as in running rolls, safety car stakes, etc. The work of this committee has been ably started by A. G. Pounsford, chairman, and it is with regret that the Sectional Executive Committee has been obliged to accept his resignation from this chairmanship, due to his acceptance of another position, which demands his entire time.

As in all other modern movements, success depends upon co-operation, and in this connection permit me to quote two paragraphs from the general manager of the National Safety Council, W. H. Cameron:

"The co-operation of the Paper and Pulp Section of the National Safety Council with the American Paper and Pulp Association is symptomatic of the general co-operative spirit of the time. The experience of our headquarters is that associations and similar bodies are eager to help one another, and because there are no "trade secrets" in accident prevention, there seems to be a wholesale desire to have the members of these associations co-operate. The American Paper and Pulp Association has been one of the foremost associations in the United States to give this co-operation. The liberality of the headquarters is all we could ask, and surely the gratitude of the general membership should be expressed for the helping hand given to our Paper and Pulp Section. Surely this has been demonstrated to be the best and most productive policy—and the two associations have helped each other.

"I hope on behalf of the National Safety Council you will extend to the members of the American Paper and Pulp Association our deepest gratitude for this liberal spirit, and offer the benefits of our Information Bureau, as well as proof that the small membership dues do not begin to cover the cost of the service, and we are quite willing to demonstrate this at any time. The work of our general membership in accident prevention is at the service of the Paper and Pulp Association."

Safety Movement Expanding

"In conclusion, let me say that the organized safety movement started in to reduce accidents and injuries, and in pursuance of our purpose, we are being led into a broader field than was at first visible.

"Many, if not most, accidents are traceable to defective mental conditions and poor habits of thought. Poor nervous and mental conditions in their turn rest largely upon poor health, poor nourishment, poor habits of living, ignorance, worry and booze. We are, therefore, being logically and irresistibly led into the broad field of health conservation.

"In various industries to-day, a skilful physician is employed on full time to study and maintain the physical health of employees in the same way that the skilful millwright and engineer are employed to study and maintain the physical fitness of the plant. In how many mills to-day are the washing facilities, toilet, locker conveniences, lighting and general sanitation such as to make self-respect difficult and pride in his work and plant impossible to the employee? In how many institutions is there an unsatisfied heart hunger on the part of the employee for natural human relationships with his employer—or vice versa? The organized safety movement is but following the leadings of truth and its conscience in dealing with these matters along with the more technical phases of accident prevention work because they are all elements in the solution of the large problem we have set our hand to.

"Safety is the by-product of right thinking, right actions, right working conditions and right relationships.

"It is our hope that you of this association will lend to the officers and committees of this section your increasing co-operation to the end that the many needless wastes and inequalities touched by the safety movement may be overcome in our industry."

Papers Read

The following papers were read:

1. "Paper Mill Lighting," C. W. Price, field secretary National Safety Council, Chicago, Ill.

2. "Trained Nurse in Small Plants," Miss Florence S. Wright, Clark Thread Company, Newark, N. J.

3. "Plant or Company Periodicals," H. A. Bullock, chairman Central Safety Committee, Brooklyn Rapid Transit Company, Brooklyn, N. Y.

The second and closing meeting was held Wednesday morning at 9:30 o'clock. The first part of the meeting was taken up with these addresses:

1. "Paper Mill Ventilation," E. A. Briner, M. E. Carrier Engineering Corp., New York City, N. Y.

2. "How to Make Safety Committee Meetings Interesting," W. C. Wilson, claim attorney Delaware, Lackawanna & Western Railway Company, New York, N. Y.

3. "Relation of Accident Prevention to Compensation Insurance Cost," D. L. Webster, New York, N. Y.

Discussion on the liquor problem, and the questions of benefits of company club houses, and locker rooms, with other subjects brought up by the meetings, followed. President Shattuck afterwards declared himself highly pleased with the active interest shown in the meetings.

The Section brought with it a liberal supply of "Safety First" educational posters and safety literature.

EFFICIENT LIGHTING IN PAPER MILLS

The following paper on "Efficient Lighting in Paper Mills" was read by C. W. Price, field secretary of the National Safety Council:

In view of the fact that two-thirds of the operations in paper mills are done under artificial light the subject of efficient lighting becomes a vital one to managers from the standpoint of safety as well as of efficiency. The standards which are recommended in this talk are based on the experience of such companies as the International Harvester Company, the Pfister & Vogel Leather Company, and the Kimberly-Clark Company—companies which have spent much time in investigating the most efficient standards which have been thus far worked out in the industries.

Darkness and Accidents

The Travelers Insurance Company recently analyzed 91,000 accidents which occurred in factories and discovered that 10 per cent. were caused directly by poor lighting, and in 13.8 per cent. of the accidents poor lighting was a contributory cause. A study of industrial accidents by the English government revealed the fact that 39.5 per cent. more men stumble and fall during the winter months than during the summer. This class of accidents, more than any other, it was contended, is due to improper lighting.

In the United States, during the winter months, there are double the number of accidental deaths, compared with the summer months.

All of the companies, which, during the past five years, have made the largest reductions in accidents, testify that good light is indispensable to safety—a dark shop is a dangerous shop.

"Adequate light will increase the total output of such plants as

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steel mills 2 per cent., and in plants such as shoe factories and textile mills it will increase the output 10 per cent," is the statement of C. L. Eshleman, a prominent electrical engineer, published in the proceedings of the American Institute of Electrical Engineers.

The experience of a large number of plants reveals the fact that the total cost of furnishing adequate artificial light in an average plant does not exceed one-half of 1 per cent. of wages. For instance, it will cost just 1 cent a day to furnish ample light for each man earning $2. This is proof positive that good light is a paying investment.

Standards for Equipment

Amount of Light. The following standards are based on the experience of such companies as the International Harvester Company, the Pfister & Vogel Leather Company, and the Kimberly-Clark Company. These standards are embodied in the orders of the Industrial Commission of Wisconsin.

In shops where there is no smoke or gas there shall be provided for each four square feet of floor space light equivalent to the light produced by a one-candle-power lamp, hung ten feet from the floor or, to put it more simply, one-quarter candle power per square floor foot. A 100-candle-power lamp will illumine 400 square feet of floor space.

One-eighth candle power per square floor foot is required for warehouses.

On machines and benches, where close work is done, sufficient light must be provided to prevent eye strain.

Experience has demonstrated that the above standards for general illumination, included in sections 1 and 2, are not only adequate for safety, but in all departments where ordinary work is done, such as paper mills and woodworking and coarse metal-working shops. These standards provide sufficient light for efficiency and make unnecessary the use of individual machine lights. When finer work is done, one-half to 1 candle power per square floor foot is necessary.

Lamps. The Tungsten lamp is recommended as the most efficient type of lamp for all conditions in shops. The name Tungsten is not a trade name, but applies to all lamps made with filaments of Tungsten metal.

There are a number of competing companies which manufacture these lamps.

The modern Tungsten lamp is a great economizer of current. The old type of carbon-filament lamp consumed 54 watts for 16 candle power, or about three and one-half watts per candle power. The gas-filled Tungsten lamp consumes from seven-tenths to one watt per candle power. One of the leading shoe factories of Wisconsin recently took out a drayload of the old type of drop cords with carbon lamps and installed Tungsten lamps with efficient reflectors. The amount of light was increased 400 per cent. and the cost of current was decreased 25 per cent.

The guaranteed life of the Tungsten lamp is 1,000 hours. Many plants are getting an average of 1,500 hours of life with the 100-watt units and larger.

Reflectors. A properly designed reflector will increase the efficiency of a lamp 35 to 50 per cent. Sixty-five per cent. of the light from a gas-filled Tungsten lamp proceeds horizontally from the filament. Unless this light is redirected by a reflector to the working plane it is wasted on the upper parts of the room.

The shallow bowl reflector is recommended for general illumination. It properly concentrates and distributes the light upon the working plane. These reflectors should be made of white porcelain-enameled steel. This material is durable, inexpensive, and easily cleaned.

The lamp should be so attached in the reflector that the center of the filament is located on a plane drawn through the center of the reflecting surface.

General Illumination of Departments, Such as the Beater Room, Grinder Room, Wood Room and Finishing Room

Lamp. One hundred-watt gas-filled Tungsten.
Reflectors. Shallow bowl, 14-inch to 16 inches in diameter.
Height. Ten feet to bottom of reflector.
Spacing. Twenty-foot centers. Do not arrange regularly over room, but locate lamps over machines and benches so far as possible. This arrangement will make unnecessary individual lights in departments where there is no close work.
Amount of Light. One-fourth candle power for each square foot of floor space. One 100-watt lamp will illuminate 400 square feet of floor space.

Machine Room

Space Between Machines. Use three translucent bowl fixtures.
Lamp. Two hundred-watt gas-filled Tungsten. (Some plants use 300-watt lamps.)
Height. Eight feet to apex of bowl.
Spacing. About thirty feet.

Over wire frame use 100-watt lamp, with shallow-bowl reflector, fourteen to sixteen inches in diameter.

Over wet end of machine, back of wire frame, use sixty-watt lamp with shallow bowl reflector, twelve inches in diameter.

Over space between machine and calender rolls, and also over space between calenders, use four twenty-five-watt lamps with deep bowl reflector seven inches in diameter. Height, level with top of calenders.

Over space back of winders, and over space in front of winders, use 100-watt lamps with shallow bowl reflectors, fourteen to sixteen inches in diameter. Height, ten feet.

For space back of machines use 100-watt lamps with shallow bowl reflector, fourteen to sixteen inches in diameter. Height, ten feet from floor; twenty-foot spacing.

Warehouses with Low Ceilings and Basements

Lamp. Tungsten, sixty-watt.
Reflector. Shallow bowl, twelve inches in diameter.
Height. As high as possible.
Spacing. Nineteen-foot centers.
Amount of Light. One-eighth candle power per square floor foot.

Stairways

Lamp. Tungsten, forty-watt.
Reflector. Cone shaped.
Height. As high as ceiling will permit
Location. At head of stairs.

Platforms

Lamp. Tungsten, sixty-watt.
Height. Twelve feet from floor.
Spacing. Over center if platform is covered. If open, attach to brackets about four feet long, extending from side walls.
Amount of Light. One-eighth candle power per square floor foot.

Yards

Lamp. Tungsten, 300-watt.
Reflector. Diameter, sixteen inches.
Height. Twenty feet.
Spacing. Two-hundred-foot center.

Individual Machines

Where the work is close and there is danger of eye strain, individual lights must be provided.

Lamp. Tungsten, twenty-five watt.
Location. Attached or hung so that the maximum light reaches tool. The most essential thing is that the lamp shall be completely

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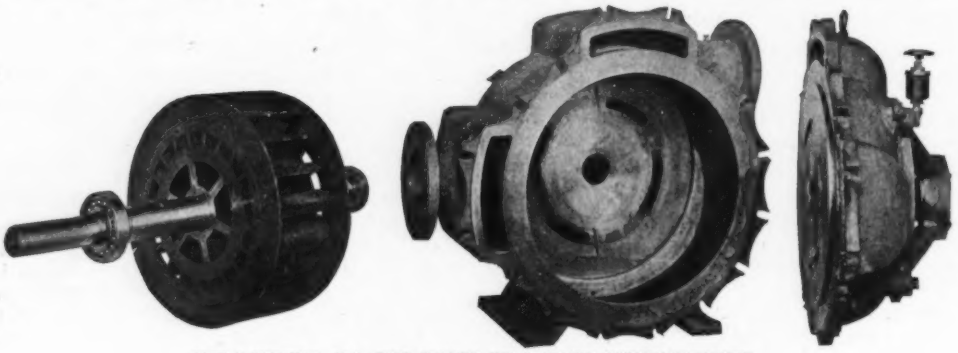

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concealed from the eyes of the operator. On many machines it is important to use adjustable fixtures to hold light in position.

Amount of light. Sufficient to avoid eye strain.

Benches

Lamp. Tungsten, twenty-five watt.
Height. Eighteen inches above table.
Location. Eighteen inches from front of table.
Amount of Light. Sufficient to avoid eye strain.

Drafting Table

Lamp. Tungsten, forty-watt.
Height. Forty-two inches above table.
Location. Over center of table or over left hand corner.

RELATION OF ACCIDENT PREVENTION TO COMPENSATION INSURANCE COST

The following paper, in part, was read by D. L. Webster:

Workmen's Compensation being of a comparatively recent date in this country, and the present well defined Safety First movement of still later origin, it is possible to give but comparatively few actual facts and figures showing the relation of Accident Prevention to Compensation Insurance cost.

In the first place, the selling price of insurance, like that of any other commodity, is governed by what it costs. In the computing of a base rate for any one class of risk, all the available data as to the number and severity of accidents in that particulr industry, and their cost in dollars to insurance carriers, are tabulated. This cost is then divided by the amount of payroll expended for the year in that particular class. This figure is then loaded to cover the cost of acquiring the business, the cost of the adjustment and handling of claims, and other items of expense and the base rate is arrived at.

It follows, quite naturally, that any movement looking and striving for a diminution in the number and severity of accidents in any one class or group of classes, as for instance the paper industry, if at all successful, must be reflected in a reduction of the base rate.

The present system of schedule and experience rating employed by insurance carriers takes account of accident prevention and the resulting experience therefrom and makes it possible to obtain a maximum reduction of 40 per cent. in the base rate. During the year 1916 the total number of accidents in New York State (exclusive of railroad and other interstate carriers) reported to the Industrial Accident Board was over 300,000, or about 1,000 for each working day. The total cost of these accidents was over $11,500,000.

It has been estimated that the wage loss, medical cost, etc., would bring the total economic loss up to over $100,000 daily, or $30,000,000 annually. In the opinion of the Industrial Board and from their analysis approximately 50 per cent. of the accidents could have been avoided by the proper guarding of machinery and dangerous conditions. You are paying your share of this destruction in large insurance premiums, reduced profits and high taxes. For an unsafe plant and unorganized service you pay a high premium rate.

For the proper guarding of machinery and dangerous conditions, or what is known as physical guarding, a maximum reduction of 20 per cent. is allowed. After the plant has been properly guarded and the Safety and Welfare Organization has been working, a further credit, known as an experience credit, maximum in the amount of 20 per cent. is allowed.

Right at this point it is probably well to bring to your attention the fact that insurance statistics show that 90 per cent. of all work or industrial accidents is preventable, 30 per cent. by means of safeguards, and 60 per cent. by the proper education of employes in matters pertaining to safety.

In New York State in 1916 over 22,000 risks were rated under the universal analytical schedule with the following results: The total audited payrolls on these risks was about $787,000,000; at annual rates the premium amounted to $7,083,000; the schedule credits for guards, safety and welfare work, etc., brought this figure down to $5,616,000; or a saving of approximately $1,467,000.

Of the above 22,000 risks 1,481 were entitled to the experience rating with results with these risks were entitled to a further reduction of approximately $645,000. These figures show a total saving during the year of over $2,100,000 in premium cost to employers properly guarding their plants.

The result of the U. S. Steel Corp. expenditure of more than $5,000,000 in the last eight years in accident prevention work can be summed up briefly, as follows: The saving in casualty expense over expenditure during the past three years has been over 35 per cent., or for every dollar spent $1.35 has been saved for the Company.

As a result of the last few years accident prevention and safety welfare work among employes, the following figures showing the percentage of reduction in the number of accidents are interesting: Cadillac Motor Car Company, 89 per cent.; Eastman Kodak Company, 78 per cent.; International Harvester Company, 88 per cent.; Corn Products Refining Company, 37 per cent.; The Neenah Paper Company, 85 per cent.

If accident prevention does not pay, why does the British Government, after years of compensation troubles, organize and maintain a Safety and Welfare Department or Bureau? Why is it that insurance companies are glad to reduce their rates for accident prevention and safety and welfare work and consider it very profitable to do so?

Why is it that such firms as the General Electric Company, U. S. Steel Corporation, Ford Motor Company, Kimberly Clark Company, and others equally as well known have officers of their corporations gratuitously serving on the Executive Committee of the National Safety Council?

The only answer that seems to answer is, accident prevention and safety and welfare work pay, both from a humanitarian and a dollar and cents viewpoint.

THE NURSE IN THE SMALL INDUSTRIAL PLANT

The following paper, in part, was read by Florence S. Wright:

We are prone to associate industrial welfare and industrial nursing with large industrial groups. But since the awakening of employers to the value of the nurse's services, the small employer, even more than the larger one, has been feeling his way toward the nurse as the partial solution of many of his problems.

The ideal of industrial nurses seems to be to serve employer, worker and community:

1. By translating clearly to the workers the employer's interest and good will, both by their work in the plant and in the homes, so promoting pleasant industrial relations.

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2. By bringing to the attention of the employer matters which, in no other way, would reach his ear so soon, such as beginning discontent among workers, and conditions in plant, homes or community, which endanger the welfare of the people.

3. By work in the homes reducing time lost from many causes, sickness being only one of these.

4. By first aid aid subsequent care, under the direction of the surgeon, minimizing the results of accident. Infections are, in practically every case, prevented where skilled and prompt first aid is given.

5. By records and reports, indicating the danger points in the plant, so that the worker may be protected from accidents and health hazards.

6. By cooperation with the employer in the plant and other agencies in the community and the homes, assisting in the removal from plant, community, and homes of conditions which menace health, happiness or morals.

7. By her teaching in the homes and work in the town, helping to create a community where provision is made for the health, education, employment, recreation, and moral and spiritual inspiration of each person.

Certainly all experienced in this field will agree that there are certain things which the industrial nurse must not be asked to do.

1. She will not practice medicine.
2. She will not be an almoner.
3. She will not be a detective.

Miss Anderson of the Kimberly-Clark Plant at Niagara, Wis., is the only nurse in the pulp and paper industry, of whom the speaker has personal knowledge. Miss Anderson has to deal with a plant employing about five hundred people. She writes:

"I begin my day by assisting the company's doctor at his office, doing dressings, giving anaesthetics, and anything that is apt to turn up. When I am through with my office work, I begin my rounds, going into the houses of the employees. Bedside nursing is done and taught, as well as the proper way of living in regard to hygiene and dieting.

"I have gone into the schools and examined the children two or three times a month."

This seems a good picture of what one nurse is doing. The company must consider the work useful, as they are planning to install a nurse in their Neenah plants.

Now that the difficulty of finding trained nurses with social training and experience is great, large companies controlling many small plants might employ a supervising nurse, who could organize the work in one small plant after another, leaving a trained nurse whom she had instructed in industrial work in charge.

Small plants located in larger towns often affiliate with the local Visiting Nurse Association, having a nurse for full or part time, who works under the supervision of the association. This plan insures uninterrupted service under competent supervision, and is sometimes the easiest and quickest way to begin industrial nursing.

MINIATURE SULPHATE PLANT AT STAMFORD

Written for the Annual Number of The Paper Trade Journal

What is probably the only complete miniature sulphate pulp plant in the world has just been built by Joseph H. Wallace & Co., at Stamford, Conn. The plant is unique in many respects.

Permits Practical Tests on Small Scale

It is so arranged as to permit practical tests of materials on a small scale and with apparatus similar to that of modern sulphate mills.

The sulphate pulp machinery was made by Pintsch & Co., of Berlin, Germany, from designs of Carl P. Carlson, of Sweden, who had a prominent part in the development of the sulphate process, and with whom Messrs. Wallace & Co. were associated up to the time of his death. This apparatus was used in connection with the development of The Southern Paper Company, and tests were there made on the woods available in the vicinity of this company's plant at Moss Point, Miss. Determinations of yield and character of product, as well as study of possible bi-products, can be made on a small scale, and the plant is well worth a visit on the part of paper makers who are interested in possibilities of developments in sulphate or soda pulp, to both of which processes it is well adapted.

The power plant includes a steam boiler delivering steam up to 150 pounds pressure, a kerosene engine for motive power, and an electric plant which supplies electricity for the laboratory and adjoining buildings.

For Investigating Paper Making Materials

This company has in the past done a large amount of work in the investigation of paper making materials from various parts of the world, and the equipment it has now, combined with its laboratory, will greatly facilitate and enlarge its scope in research work. Examination of vegetable fibres under the microscope are made, and photomicrographic apparatus is used for making permanent records of these examinations.

It has accumulated a large number of paper and pulp samples of which records are in its possession, as to their composition and process of manufacture. These samples form an exceedingly interesting and valuable exhibit and are evidence of the extended experience gained by its members during the past decade in the paper making industry.

A Unique Proposition

The bringing together of the various pieces of apparatus constituting this miniature mill is unique in many ways. Situated as it is among the hills of southern Connecticut, with quick transportation to New York City, the desirable features of freedom and quietness of the country are combined with the necessities of close contact with the business world. Adjoining the building which contains the laboratory and paper making machinery, is Mr. Wallace's cottage, in which his guests enjoy every comfort of the city house. In the laboratory are facilities for reproducing the processes and conditions existing in the commercial sulphate and soda mills of the present day, and for applying these to new products of manufacture. Power is there for beating to any degree desired; steam is available from a boiler which serves no other purpose than for the laboratory's use; it is therefore under the complete control of the operator to secure the desired pressure and quantity of steam for the experiments in hand. Electricity is produced from the company's own electric light plant located in the same building with the laboratory equipment.

The making of caustic liquor for cooking pulp materials is effected in a complete system of dissolving tanks, filter and storage tanks, and analysis of cooking liquor is made for each experiment to determine its ingredients in exact quantities.

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WOOD PULP AND RAG PULP

Quotations cheerfully furnished on request

The digester in which the cooking is done has a capacity of 2/10 of a cubic meter. It is supported on trunnions and geared to rotate as in the case of the rotating digesters of the larger commercial mills, in fact it is an exact reproduction of a modern seamless steel digester.

The blowing of the digester is through a diffuser in which the pulp is also washed free from black liquor.

Volatile bi-products can be condensed as they come off in the process of cooking and black liquor can be retained from the diffuser when desired. All of the elements of the successful commercial sulphate pulp mill are embodied in this small mill, which is the result of untiring efforts on the part of Mr. Wallace and his associates for years to put together a plant on a small scale and yet large enough to give results comparable with the larger scale commercial mill of modern design.

While the purely technical laboratory features are retained and are necessary in the fullest investigations, the practical operations pertaining to the manufacture of pulp predominate in this miniature mill.

In Good Position to Continue Valuable Work

The experience of this firm in the pulp and paper development for the past 20 years, its contact with manufacturers in United States, Canada and Europe, and its close observation and extensive travels in connection with the paper-making industry, places it in an enviable position to continue the valuable work which has been so well started. Chief among its many aspirations in these times when conservation is uppermost in the minds of the industrial world, is the utilization of those materials which are destroyed as waste, and there are few industries to which this applies with greater force than in the saw mill operations of the southern part of the United States. Here vast quantities of sound wood in the form of slabs and edgings are destroyed by fire for the sole purpose of getting them out of the way. This material is excellent for the manufacture of paper, and to this firm no small amount of credit is due for the advancement of the industry in this particular field.

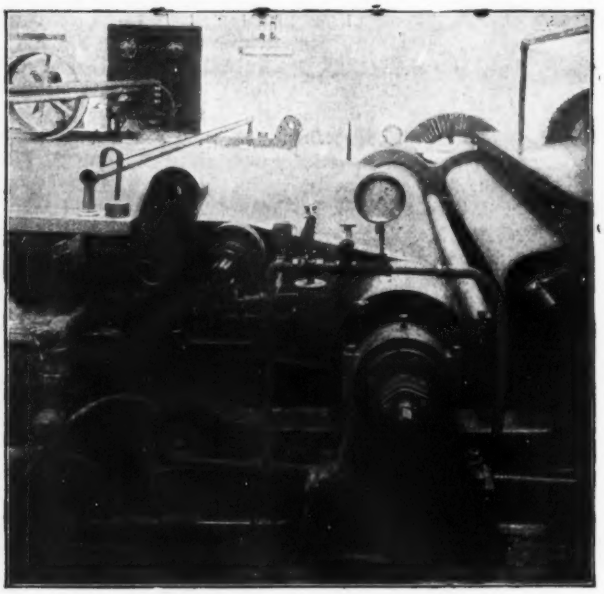
Many other fields are equally promising, and this firm is now equipped with the means for carrying still further this investigation and research work. Joseph H. Wallace, C. E., is president of the firm, and associated with him are W. E. Truesdell, C. E.; F. E. Greenwood, M. E.; Joseph Perry, C. E., and A. W. Waern, M. E. Mr. Waern was for some time associated with Carl P. Carlson in the development of apparatus for sulphate mills, and afterwards was superintendent of the sulphate mill at Billingsfors, Sweden.

VIEWS IN MINIATURE SULPHATE MILL AT STAMFORD, CONN.

JEFFREY CO. OPENS AN OFFICE IN CLEVELAND

The Jeffrey Manufacturing Company, of Columbus, Ohio, has recently opened a new Branch Office in Cleveland, Ohio, 421-423 Rockefeller Building, which will be in charge of W. E. Holloway and C. B. Reed.

Both of these gentlemen have been connected with The Jeffrey Manufacturing Company for a number of years, and have had long and successful experience in sales and engineering work, which will prove of great assistance to customers in solving their elevating, conveying, screening, crushing, pulverizing, transmission and mining machinery problems. Their efforts to give the trade the best possible service will be certain to be appreciated.



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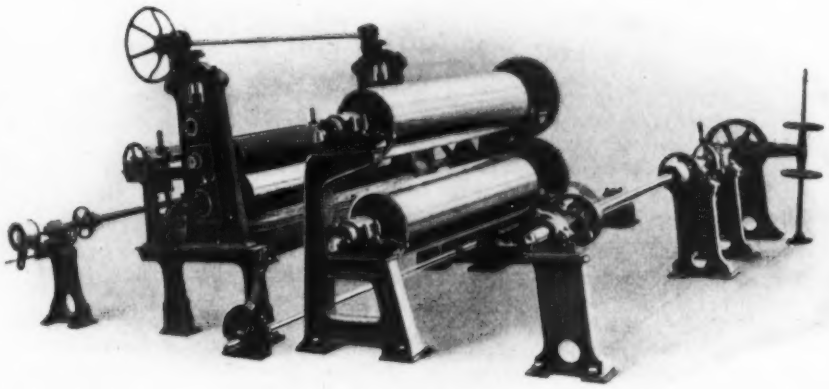


CONVENTIONS OF MANUFACTURERS

Fortieth Annual Meeting of the American Paper and Pulp Association Is Greatest in Organization's History

A. B. Daniels of the L. L. Brown Paper Company Is Reelected President of the Association—L. M. Alexander Is Chosen One of the Vice-Presidents and Other Officers All Succeed Themselves—Interesting Programmes Are Arranged and Successfully Carried Out by All the Divisions—"Cost Accounting" Is Among the Most Interesting Subjects Discussed—Several New Divisions Are Formed.

The large number of paper manufacturers of all lines who, no doubt attracted by the abnormal conditions now prevailing in the paper industry, showed more than usual interest in attending the various meetings of allied associations, gave promise of an exceptionally well-attended and instructive annual meeting of the entire American Paper and Pulp Association.

Expectations Fully Realized

The rosiest expectations were fully realized when the thoroughly well-arranged program of the annual meeting first became known to the members. In addition to the annual reports of A. B. Daniels, president, and A. D. Naylor, secretary of the Association, the six timely speeches which completed the program were the most enthusiastic and the most educational that could have been made.

Each subject was treated by an expert and in thoroughgoing and sincere fashion. Both political, market and technical conditions were discussed in their most up-to-date phases.

Helpful Talk on "Cost Accounting"

"Cost Accounting," a feature of business methods which is receiving more attention in all industries at the present time than almost any other, was assigned as a subject to Mr. B. A. Franklin, whose treatment of the modern systems of cost-finding showed his qualifications as an experienced introducer of proper methods. The only shortcoming of Mr. Franklin's discussion was that it could not be made longer. This subject is of particular import to paper mills because they have been frequently accused in the past of losing business opportunities owing to insufficient knowledge of their costs of production. Many of the suggestions made by Mr. Franklin, taken in connection with the report made by the Cost Committee of the Association, are now receiving the careful consideration of paper manufactuerrs, and a decided improvement in the methods of the average mill should be the result.

Mr. C. A. Crocker, of the National Industrial Conference Board, set before the meeting in a nutshell the purposes, methods, and present work of the board, with which the Association has kept in close touch during the last year.

Judge Moore on Railroad Conditions

Judge C. F. Moore, secretary of the Bureau of Statistics of the Book Paper Manufacturers, explained the part taken by representatives of the paper industry in the recent investigation of railroad and freight conditions made by the Newlands Investigating Committee. When the work of the committee was cut short by the refusal of Congress to extend its time for investigation work, Judge Moore was preparing to present the attitude of the paper manufacturers of the country before the committee at Washington whenever opportunity offered. At present, of course, there is no prospect of the continuation of the hearings, but if the committee should again be brought to life, the program originally mapped out will be continued, so that a united front will be presented by the whole industry.

Dr. Pratt on Timely Questions

The questions of "Dyestuffs and Anti-Dumping Legislation" and of "Foreign Trade" were discussed by Dr. E. E. Pratt. These subjects both dealt with the after-the-war situation which is now uppermost in the minds of the industry, but which is still almost an "unknown land." The views of Dr. Pratt on the subject were voiced to sympathetic ears, and altogether his address hit the spot as well as anything said at the meeting.

The technical element of the program was supplied by Vice-President Frank L. Moore and the Hon. Warner Miller, the former of whom spoke on the "Wire Situation" and the latter on the "Introduction of Ground Wood Pulp in Paper Making in the United States." In view of the present agitated condition in the ground wood market, Mr. Miller's description of the career of ground wood as raw material was remarkably interesting.

Safety Section Meeting

S. F. Shattuck, chairman of the Paper and Pulp Section of the National Safety Council, which held two well-attended meetings during the convention, explained the present activities of the council and its plans for the future.

The meeting was held in the Myrtle Room on Thursday afternoon at 2:30. Although scheduled for two o'clock, the members kept arriving until that hour, when the meeting was called to order by President Daniels.

Before the program of speakers was reached, the reports of President Daniels and Secretary Naylor were read, dealing with the activities of the Association during the year, and the present prospects for the interests connected with it.

The speakers were followed by the presentation and adoption of resolutions affecting the future policy of the Association.

Election of Officers

The new officers, to serve until the next annual meeting, were then elected, as follows:

President, A. B. Daniels.

Vice-presidents, Frank L. Moore, L. M. Alexander.

Secretary, A. D. Naylor.

Except for Mr. Alexander, the officers are all serving second terms.

THE PRESIDENT'S ADDRESS

A. B. Daniels, president of the American Paper and Pulp Association, read his annual report as follows:

During my year as President of the American Paper and Pulp Association, I have at least learned two things: First, how little I, as a manufacturer, knew about about the real service the Association is actually rendering; and secondly, how absolutely necessary the Association is for the future development and interests of the industry, especially in view of conditions after the war.

Pleasant Education

As regards my own lack of intimate knowledge concerning the work of the Association, I can assure you that my education this last year has been both liberal in amount and yet pleasant in value. If each one of you could serve as President, or in some capacity closely connected with the Association, what I have to state in this brief report would not be necessary, because you would fully realize the apparent facts.

Looking Ahead

This report is not necessarily to be an apology, as no one need offer any excuses or explanations as regards the Association, but rather do I want here to emphasize what should be your relations to this your Association and to suggest what lies before us. The good work of this Association is too evident not to be fully realized by any one who has taken the least trouble properly to inform himself. My own ignorance as regards the work and value of the Association was due largely to the fact that as a manufacturer I had been busy with my own personal affairs and had not been inclined to read half of the information and communications which the Association sent out. The same is doubtless true with you. I do not wish in this report to accuse any member of being remiss in not knowing these facts, but I certainly feel that each member should be pretty sure that he knows what he is talking about before he ever passes an opinion upon the advisability of having a national association for the paper and pulp industry.

Association Conducted for Manufacturers

The paper manufacturer, who asks the question: "What good is the Association?" only displays either his own ignorance of true facts or complete lack of ability to comprehend a great, economic necessity. The trouble with most manufacturers has been that they have really looked upon the American Paper and Pulp Association as apart and distinct from their own individual business, whereas the Association is conducted wholly and solely for the interests of the manufacturers, individually and collectively.

A. B. Daniels, President.

Some have suggested that the American Paper and Pulp Association is merely a social organization, but such statement is as far fetched as to claim that a factory is a club house, merely because the employes have an outing once a year. Because you may come to New York at the time of the annual meeting, and that is the only time in the year when many are in actual touch with the Association, does not indicate that the other days of the year the Association is not a hard working business organization, striving every day to protect your interests and those of your associates as paper and pulp manufacturers. I can guarantee to you that the Association is a business organization, and if you will take time to visit our offices and to investigate the work, which is being done, you will not only be pleased, but be surprised at the quantity and superior quality of the services, which are being rendered. All that you have to do is to read over the report, which was mailed to you recently to realize what has been done. Such deeds show better than I can here state what the Association has done and is really doing.

The Association a Business Organization

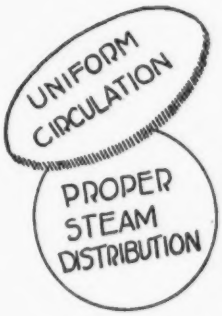
As your President in the last year, personally, I have been made to appreciate all that I really lost in the past by not then fully realizing the importance of the Association and giving it greater consideration. I do not intend in the future ever again to allow my interests as a manufacturer to be apart from those of the Association. I realize now, more than ever, that the American Paper and Pulp Association for me, as for each one of you, is one of the best protections and sources of true market information which exists. Our Secretary reads and searches all publications and other sources to select such facts as reach you in the weekly bulletin. This gives what you should know and saves you time. I wish to call to your particular attention this fact, in view of my personal experience, that when you receive information and inquiries from the American Paper and Pulp Association, you are, indeed, a short-sighted manufacturer if you do not carefully read every word that reaches you and endeavor to co-operate when necessary in every effort of the Association.

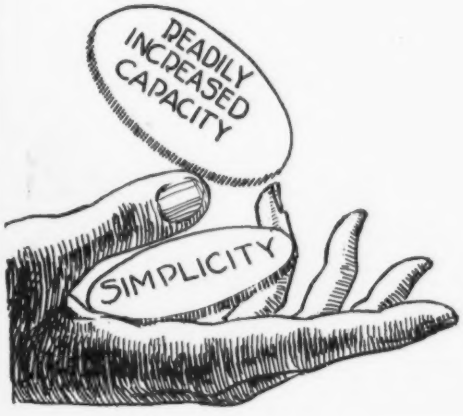
Represents One of Largest Industries

The American Paper and Pulp Association represents one of the largest industries in this country and as a business organization should be looked upon with the highest respect by all of its members.

The work, which has been accomplished this past year, has been in no way due to myself in particular having been President, but rather to growing realization in the minds of many manufacturers of the necessity of co-operative effort, especially in national matters for their own protection

"BUFLOVAK" EVAPORATORS





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To the man who knows the value of these features in an Evaporator

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offer definite Saving and Increased Profits.

They embody every feature of strength, uniformity, proportion, steam distribution, capacity and simplicity—they are truly the evaporators for tomorrow's—and every day's Satisfaction.

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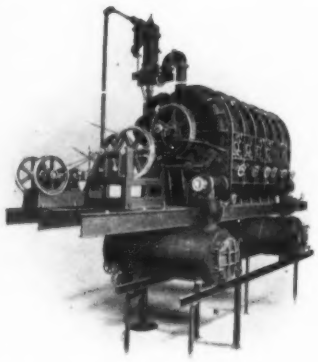

"Buflovak" Vacuum Drum Dryer

Turn Your Sulphite Waste Liquor Into a Valuable By-Product

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The "Buflovak" Drum Dryer enables the most delicate liquid materials to be converted into dry form at extremely low temperatures—thus removing all danger from overheating—and at a very low cost of operation. In most cases the dried material is delivered as a powder, thus eliminating grinders.

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Vacuum Shelf Dryer, for drying materials in pans or trays.

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Dry Vacuum Pumps, Condensers, Impregnating Apparatus, Solvent Reclaiming and Special Vacuum Apparatus

"BUFLOKAST" CHEMICAL PLANTS

The principles behind "Buflokast" are few and simple—just *efficiency* and *durability*—which mean lowest cost in the end.

"Buflokast" Apparatus stands squarely on its record, which includes numerous replacements of other apparatus with "Buflokast" equipment. If you insist upon dependability and service in your chemical plant, your choice is bound to be "Buflokast."

Our organization, our engineering, our manufacturing facilities, our consulting specialists—these are all at your command for the solution of YOUR chemical problems.

"Buflokast" equipment includes

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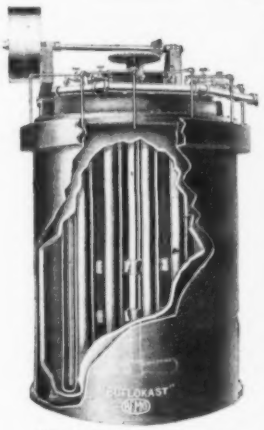
for the production of many chemical products, including Organic and Heavy Chemicals, Acids, Alkalies, High Explosives, Coal-Tar Colors and kindred materials. Also separate parts such as

Nitrators, Reducers, Sulphonators, Aniline, Beta Naphthol and Phenol Stills, Autoclaves, Caustic Pots and Fusion Kettles, Nitric Retorts, Crystallizers, Acid Eggs, etc.

Catalogue on request.



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and in their willingness to assist individually or through committee in all the necessary questions considered and work accomplished.

It is a pleasure in looking over the Secretary's report for this last year, to notice that our Association has increased its membership by over one hundred members, and this shows certainly the beginning of a fuller appreciation on the part of the manufacturers of the service being rendered. Among our new individual members are a majority of the book and news print manufacturers.

Also it is an essential and important fact for a business organization to be able to say that its bills are collected and paid up, and you will note that this year there are no unpaid bills or outstanding financial obligations and that all dues and assessments for the fiscal year have been paid, a record of which I think our Treasurer may justly be proud.

The Association, as already mentioned, has issued a tremendous amount of bulletins and circulars and other information to the members, all of which have related to their individual interests, and present and future welfare. The Association has carefully answered many special letters of inquiry and has kept statistics as regards the entire paper industry, which statistics are now

At the beginning of last year the whole tone of the market was exceedingly uneasy. No one knew exactly what the future had in accurate and complete.

Year Opened With Uneasy Feeling

At the beginning of last year the whole tone of the market was exceedingly uneasy. No one knew exactly what the future had in store as regards supply and demand; buying and prices were unprecedented, all of which caused a fluctuating and unstable money market. In the paper and pulp industry the uncertainty of raw material was a large contributing element. Foreign imports of bleached and unbleached pulp and rags decreased to an unprecedented minimum, and there was a marked shortage in domestic rags. The domestic pulp mills were unable to meet the demand, and all other supplies for mills showed a shortage with increasing prices.

The uncertainty of an election year also was a contributing cause to the instability of the market.

All bills deleterious to the industrial prosperity of the country have had to be carefully watched, in order that they might not become a disastrous loss. Also labor was exceedingly nervous at the beginning of the year, and only by careful judgment, not only in the paper and pulp industry, but in other industries, have serious industrial difficulties been averted.

In the legislative field, we have watched all matters inimical to the best interests of manufacturers and have taken all necessary action as regards each. In this connection alone there should be no under-estimating the value of our usefulness as an Association, representing such a large industry.

Should Not Be Independent Action

This brings to mind the fact of the undesirability of the independent allied associations taking up these general and legislative matters individually. There should be, as there is in the American Paper and Pulp Association, a co-ordinating, general association where the interests of these allied divisions may be brought together and united in matters of national importance, in order that in presenting the opinion of the paper and pulp industry in Washington or elsewhere we may not have one division stating one thing, another division stating another and the Federal and other authorities saying to us, that when the paper and pulp industry knows what it wants, its interests will then be considered. The old saying of "united we stand, divided we fall" is very true, as relating to our interests.

Some, of course, may feel that each division has its independent interests, but such is no more true of a division than it is of a manufacturer. If each manufacturer worked out his relations to general matters on an independent basis your divisional associations would not be possible. It is poor judgment for any branch of the paper industry to think that they can work out national matters independently and that what happens to other branches does not materially affect theirs. All branches of the paper industry in this country are related and what is of general interest to one or more divisions is of interest to all, just as truly as what affects one manufacturer is bound to affect another, even though he may make a different kind of paper. If you believe in co-operation within your own association, you must believe in co-operation of divisions in a general association. As in a division some manufacturer must concede at times some point in order to co-operate with others, so in a general association some division must concede certain matters in order to bring about harmony and co-operation as a whole.

Great Deal of Duplication Saved

When you consider the legislative matters, which we have handled, and then such questions as the dyestuff situation, shortage of rags and paper stock, fourdrinier wire situation, British embargo on the Exportation of Old Manilla Rope, Disinfecting of Imported Bagging, Freight Embargoes, Traffic Matters, Patent Suits, etc., you will see that such as affecting all branches more or less are essentially the work of a national or general association, through a general association handling such general matters saves a great deal of otherwise duplication and possibly contravention of effort on the part of the separate divisions.

As regards the necessity of the American Paper and Pulp Association for the future of the industry, we all know what times have been recently and are wondering what will come after the war. If, there ever was a necessity for a general association it is now in preparation for the time when the natural and inevitable reaction from the present over-stimulated market will set in.

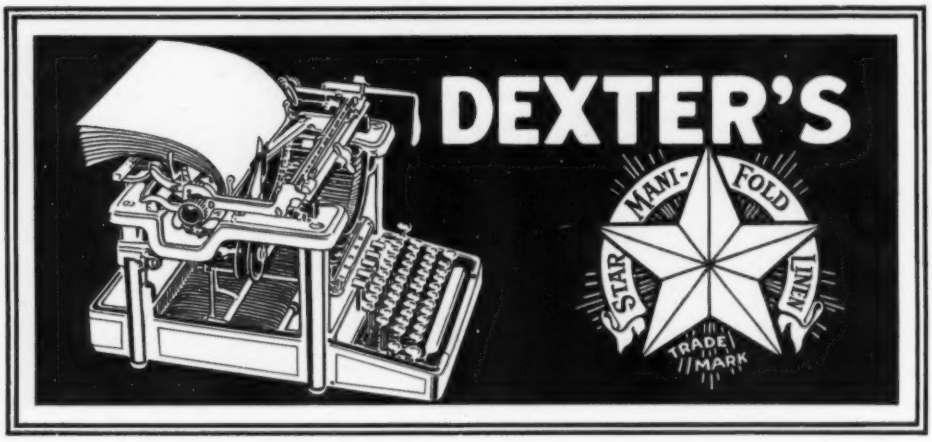
I think that we shall all admit that the paper industry has allowed itself to be abused, that the manufacturer has allowed himself in the past to be placed on an unsound economic basis. But recently, in view of the manufacturers looking more particularly into costs and having a better opportunity to realize what in the past they have lost through their own lack of knowledge and stamina, it has made the manufacturers more convinced than ever that the only way to conduct business is according to proper costs, and with a thorough knowledge of general market conditions.

Has Trusted Too Much to Luck

The great trouble with the paper and pulp manufacturer has been that he has either trusted to luck or allowed his judgment to be governed altogether too much by rumor picked up in newspapers, or from some unreliable source. Success may have been possible in the past under these conditions, but will not be in the future, for with the keen competition which in a few years will be here, the manufacturer who is not alert to true conditions and absorbing all possible information on which to base a wise individual policy will be in serious public when the inevitable time comes. Don't let your present false prosperity blind you to the near future conditions. And there is and will be no better way to keep your eyes open and yourself informed than by close attention to and co-operation with this association. The American Paper and Pulp Association is conducted upon the principle that it keeps its members properly informed as regards market conditions and activities, and then leaves it to the individual to draw his own conclusions and outline his own policies. If a man knows the truth about general facts and what is to be expected in the future as regards supply and demand, he cannot go very far wrong if he is any kind of a business man in outlining the policy of his company.

Great National Problems

Great national problems confront us, especially as regards the demand for paper after the domestic reaction has set in. If the Webb Bill becomes a law, permitting combination in export trade, the Association should be the clearing house. I think that for the



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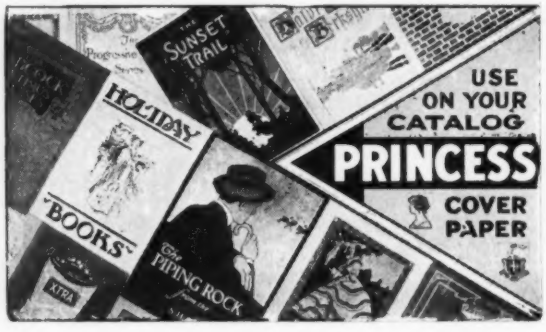

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next year or two, the Association should carefully turn its attention to creating, for all branches of the paper industry, new foreign markets, especially in South America, to take care of the then surplus production when the domestic demand decreases. You will note that the Department of Commerce, at the request of the Association, has an expert representative in South America investigating the paper conditions there.

You must bear in mind one thing, that after the fighting is over in Europe, one of the greatest competitive trade wars that the world has ever known is going to take place and it behooves every industry in this country, through a general representative association, to get itself in order now so as to be prepared to protect our interests then. Just as truly as military preparedness is necessary so industrial preparedness is necessary and no industry needs it more than the paper and pulp industry. One of the most essential matters in connection with our industrial preparedness, I trust will be the appointment soon of a non-partisan tariff commission. We must have some kind of reliable protection in this country, if we are to survive safely the conditions which will arise after the war. Our imports then will greatly increase, because even now we are the largest purchasing factor in the world. All the gold is here and this country will be the world's market for a considerable while after the war. As our imports will increase so our exports to the warring nations will decrease, since it is a confessed policy of theirs to encourage the manufacture of all articles hitherto imported by them. Domestic economy and increased variety of production will be carefully followed abroad and this country will be the market for their goods. Unless we have a reasonable and adequate protection, over-production will result in this country and hard times will ensue, as the reduction in price of articles will in no way compensate for the necessary reduction in domestic manufactured production, with the consequent non-employment of labor and curtailed circulation of sound money.

Necessary to Prepare

No matter who may be the victor in Europe, the commercial effect in this country will not be much different. The victor will take the form of a stewardship of trade and navigation, whereas the vanquished will consecrate all their energies to the restoration of pride and product. It is, therefore, very necessary for every industry in the United States to prepare for whatever business conditions may arise in the next few years. This is no time for ideal dreams, satisfied assurance and conscious indifference. In Europe prohibitive tariffs, black lists, boycotts, embargoes on mail and cargoes, exclusion from England and France of hundreds of our manufactured articles only show how the trade winds are blowing. It behooves us to prepare for the storm.

All the industries of England and France are being mobilized, as in those countries they appreciate that they have to compete with the recognized efficiency of German industries. We should also urge the organizing of industries for trade expansion in this country so as to maintain a stable volume of business after the war. It is wrong to assume that because European countries after the war will be impoverished financially they will be impoverished industrially. Some claim that they will not be able to manufacture because of a lack of men, but that is a surmise merely and does not portend what will really be the true conditions.

Heretofore about 78 per cent. of our imports have been to the present nations at war and since they will have little or no money with which to buy goods, it therefore behooves us to look now to South America and other countries where the purchasing power is and will be greater and more stable.

Plan for General Standardization

Our general committee on uniform cost system, assisted by the Federal Trade Commission, is presenting you a plan for general standardizing and thus stabilizing the industry so the manufacturer in knowing his costs can better judge how to take care of foreign and domestic demands.

In this regard of costs and other matters, we have worked in close co-operation with the Federal Trade Commission, and I am pleased to say that the Commisison feels that the American Paper and Pulp Association has long since established itself as one of the leading and most progressive trade associations in this country.

The domestic economic problems which lie before us as regards supply and demand, labor, etc., are things which the association will carefully watch out for next year, and I trust that from now on all the manufacturers of paper and pulp will have thorough confidence and knowledge in the valuable and necessary work which the Association is doing.

Secretary Naylor Complimented

As regards the work of the Association I feel that the members should be made to realize that their interests have largely been watched out for by the indefatigable efforts of one individual, in particular, their Secretary.

When we were selecting the present Secretary two years ago the question arose whether we could afford a high grade business man and we felt that such a Secretary was the only kind of a man who could work out the problem of this Association.

In selecting Mr. A. D. Naylor to undertake this work, we can certainly congratulate ourselves upon our decision, as I do not think that we could have been able to have accomplished what we have had it not been for his excellent judgment and untiring efforts.

I can, at least, state positively that I know it would have been impossible for any human being to have worked any harder, because time has been no consideration with him, and every matter has received his personal and careful attention. This statement is not made by me in my annual report merely because it is customary for a President to compliment a Secretary upon the work which he has done, but rather because when I look over the report which was recently mailed to you that you might be fully informed regarding our activities, prior to this meeting, you can realize the tremendous amount of work which has been accomplished, and I certainly think that we are to be congratulated upon having such a man as our General Secretary.

As long as he is Secretary of the American Paper and Pulp Association, you may be certain that the Association will be conducted along the business lines, which I have outlined, and which you have seen during the past two years, and although he is not looking for compliments, and in fact may resent what I am here stating, I can assure you that the best way you can show your appreciation of his efforts is by co-operating with him and support him in every possible way, for with Mr. Naylor's ability, his present knowledge of the members and industry, he is capable of handling with our confidence the impeding economic situation.

Co-operation Appreciated

I wish to take this opportunity to thank each one of the divisions of the Association for its co-operation in the past year and each individual manufacturer for his interest and support.

No man knows definitely what the future has in store for us, therefore, I have purposely avoided in this report making any specific prophecies or attempting any scholastic analysis of underlying economic conditions, as there is plenty of speculative literature already published on this subject, but rather have I endeavored frankly to make you, as paper and pulp manufacturers, realize the present importance of the American Paper and Pulp Association as your representative general organization, to impress upon you your general weakness and the necessity for your own interests giving greater attention to the work and information of this Association, and to sound a solemn note of warning for preparedness through co-operation in your divisional associations and this general co-ordinating organization for the inevitable economic crisis, which will have to be met in an intelligent, deliberate manner at the conclusion of present conditions in Europe.

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The Best for Color and Litho Work
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THE SECRETARY'S REPORT

A. D. Naylor, the Secretary of the Association, submitted the following report:

Executive Council

The Executive Council and Executive Committee have held four meetings during the past year. Matters of importance to the industry were considered at each meeting.

Increased Membership

At the close of the last fiscal year—January 31, 1916—the total membership of the American Paper and Pulp Association was 225 companies.

At the present time the membership of the Association is 321 companies, an *increase* of 96 companies, or 42 per cent.

Finances

The financial affairs of the Association are in excellent condition. There are no unpaid bills or outstanding financial obligations. All dues and assessments for the fiscal year have been paid.

Statistics

Statistics covering the entire paper and pulp industry are compiled by the Association and are kept on file in full detail for the benefit of the members.

The Association records monthly information regarding the imports and exports of paper and pulp.

Bulletins

The Association issues a bulletin each week.

These bulletins are carefully prepared and contain information with regard to the work of the Association, the general business conditions, the pulp situation, import information and matters of general interest to the members.

Circulars

During the past year the Association has issued 1,664 circulars and reports of which 163 were issued for the General Association and 1,501 for the various divisions and affiliated associations.

Information Bureau

The Association maintains an information bureau of general facts about the entire paper and pulp industry.

The Secretary has received during the past year from members and others 853 requests for various information on general subjects of the paper and pulp industry, which requests have been given careful attention and answered.

Labor Bureau

The Association maintains a labor bureau. During the past year the Association has received seventy (70) applications for positions and has furnished forty-one (41) manufacturers with lists of available men.

Import and Export Information

The Association furnished to members the following reports regarding imports and exports.

Weekly table showing the imports of pulp and paper making materials at the five Atlantic ports.

Monthly comparative statement of the imports of print paper.

Monthly comparative statement of the imports of wrapping paper.

Monthly comparative statement of the imports of pulp.

Annual comparative statement of the imports of print paper for the years 1910 to 1916, inclusive.

Annual comparative statement of the imports of pulp for the years 1910 to 1915, inclusive.

Monthly report of exports of paper and pulp by countries of destination.

The Association has also furnished various statements of the imports and exports of paper and pulp to members upon special request.

Export Trade

The Association has been working with the Bureau of Foreign and Domestic Commerce, Washington, D. C., in the matter of the development of export trade, particularly with the South American countries.

At the request of this Association the Department of Commerce appointed a representative to visit the South American countries for the purpose of investigating the paper conditions. This representative is now in South America and when the investigation is completed full report will be made for the benefit of those interested.

Samples of various kinds of paper manufactured in the different countries are kept on file in the Association rooms for the benefit of the members.

The Association was represented at the Fourth National Foreign Trade Convention held at Pittsburgh, Pa., January 25, 26 and 27, 1917.

Uniform Cost System

The Association has been giving careful attention to the question of a Cost Accounting System for use in paper and pulp mills.

A committee was appointed and has earnestly worked on the proposition with the view of submitting a full report for the benefit of all manufacturers in the industry. The personnel of the Committee is: B. A. Franklin, Chairman, F. H. Macpherson, H. E. Fletcher, J. W. Bottcher, R. D. Smith, W. O. Davey, S. S. Rogers, G. Frank Merriam, W. E. McIntyre.

The Association is urging all branches of the industry to give careful consideration to the question of a uniform cost system applicable to their particular needs, and practically all the branches are considering the question at this time.

The Federal Trade Commission has also requested the Association to give this important subject consideration and to submit the final report to them for approval, after which the Commission will render every assistance possible in prevailing upon all manufacturers in the industry to install a regular cost system.

The report of the committee has been submitted to the Federal Trade Commission, and it is expected that the same will be approved in time to be submitted at the annual meeting on February 8.

The Commission recently issued a pamphlet entitled "Fundamentals of a Cost System for Manufacturers." A copy of this pamphlet was sent to every paper and pulp manufacturer.

Federal Trade Commission

The Secretary of the Association has kept in touch with the Federal Trade Commission, assisting them in all matters of interest to the paper and pulp industry.

Representatives of the Federal Trade Commission have made frequent calls at the Association rooms with regard to cost accounting, co-operation in foreign trade and other matters of interest to our members.

The different members of the Commission are addressing various associations and commercial organizations on the question of assisting business and are recommending trade associations as the means of accomplishing the results desired.

The Association has sent copies of these addresses, seven in all, to every member and also to paper and pulp manufacturers who are not at present members of the Association.

Eight Hour Railway Wage Law

In connection with bill H. R. 17,700, introduced in Congress by Representative Adamson, establishing an eight-hour day for employees of carriers engaged in Interstate and Foreign Commerce. During the railroad controversy the Association wired President Wilson, as follows:

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The Howard Paper Company

URBANA, OHIO

THE Howard Mills are renowned for the unusual quality of HOWARD BOND, America's most rapid selling watermarked commercial paper.

The natural advantage of the Howard Mill's purest and most perfect paper-making water combined with selected raw stock insures

HOWARD BOND

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COMPARE IT! TEST IT! TEAR IT!

AND YOU WILL SPECIFY IT

SAMPLE BOOK SUBMITTED UPON REQUEST

"We strongly urge the principle of arbitration in the matters involving the interruption of railway service in the pending railroad controversy.

(Signed) "A. B. DANIELS, President
"American Paper and Pulp Association."

The Association also sent a circular to all members on this subject for their individual action.

At the time the bill introduced by Representative Adamson was under consideration in the House and Senate, telegrams were sent to a large number of Senators and Representatives urging against the enactment of the proposed eight-hour legislation without thorough impartial investigation of its merits and effects. The telegram read as follows:

"We strongly urge against enactment of proposed eight-hour legislation without thorough impartial investigation of its merits and effects. Also urge upholding principle of arbitration.

(Signed) "A. B. DANIELS, President
"American Paper and Pulp Association."

At the request of the Chamber of Commerce, United States of America, the Association appointed a committee of three to represent the paper and pulp industry, prepared to go to Washington to attend a general meeting, if called, for the purpose of making strong representations to Congress in connection with the railroad controversy.

Anti-Dumping Legislation

Various associations representing manufacturers have held numerous joint meetings during the past year on the question of legislation to prevent dumping after the war. A committee was appointed for the purpose of conferring with the Government officials at Washington with the view of securing proper legislation for the protection of manufacturers in this country. This committee, assisted by Dr. E. E. Pratt of the Department of Commerce, met with special committees of the House and Senate, at which meetings the seriousness of the situation was discussed and suggestions made as to the nature of the legislation that should be enacted.

The result of the efforts of this committee was the passage of the anti-dumping measure in the General Revenue Bill. While the legislation as enacted was not entirely satisfactory, it was the best that could be secured through the present administration at Washington.

The Secretary of the Association attended all the general conferences, assisting with the work.

Senate Joint Resolution No. 60

Joint Resolution No. 60 was introduced in Congress by Senator Newlands to create a joint sub-committee to investigate the conditions relating to interstate and foreign commerce and the necessity for further legislation relating thereto.

The investigation as contemplated was very broad in its scope, going into the following subjects:

Government control and regulation of interstate and foreign transportation.

Efficiency of existing system in protecting the rights of shippers and carriers and in promoting the public interest.

Incorporation, or control of the incorporation, of carriers.

The proposed changes in the organization of the Interstate Commission and the act to regulate commerce.

Government ownership of all public utilities such as telegraph, wireless, cable, telephone, express companies and railroad companies engaged in interstate and foreign commerce.

The wisdom or feasibility of Government ownership of such utilities.

The comparative worth and efficiency of Government regulation and control as compared with Government ownership and operation.

The joint committee solicited from railroad representatives, manufacturers and other shippers, their views on the entire situation, it being their desire to secure all the light possible on these important subjects.

The first hearing before the Joint Committee was held in Washington, commencing November 20, 1916. The Secretary of this Association, together with several industrial traffic managers, representing various paper traffic associations, attended this hearing representing the paper industry.

On account of the importance of this investigation and the work contemplated, arrangements were made through a special committee representing the various paper interests to appear before the Joint Committee.

Because of the magnitude of the work to be undertaken by the Joint Committee, and the fact that the investigation could not be completed in time to submit a report to Congress by January 8, 1917, the date required, the investigation was temporarily suspended and will not be resumed until probably some time in March, 1917.

There is a possibility that the investigation will be permanently suspended, but in the event that it is resumed, the special committee of the paper industry will be prepared to present their arguments.

The Secretary of the Association is working with this special committee and will render every assistance possible.

Senate Joint Resolution No. 186

This resolution was introduced in the Senate by Senator Wadsworth, authorizing the Secretary of War to issue temporary permits for additional diversions of water from the Niagara river. The increased diversion was sought to create greater power for American plants due to the determination of the Canadian Government to cut off power to American concerns because of military necessity.

As the action of the Canadian Government created a serious situation for the manufacturers in this country affecting the paper industry, the Association co-operating with others urged the prompt adoption of the resolution in order to secure the necessary relief for manufacturers in this country.

The resolution was finally adopted by both Houses of Congress.

Senate Resolution No. 269

Senate Resolution No. 269, introduced by Senator Fletcher, to request the Federal Trade Commission to investigate the increase in the prices of the various kinds of paper required for the public printing and binding during the last year, and to ascertain and determine whether there have been any violations of the anti-trust acts and whether the paper so used was manufactured in the United States or imported from the Dominion of Canada.

A copy of this resolution was sent to the members for their information.

H. R. 11621, introduced by Representative Tague, to provide for mailing circulars, catalogues, etc., now available under 8 ozs. in weight, at the third-class rate of 1 cent for two ounces or fraction thereof.

The Association through its Executive Council urged the passage of this measure.

H. R. 8665, introduced by Mr. Tavenner, prohibiting time studies, and premium payments to employees in government plants.

A copy of this bill was sent to members with the request that they file a protest with their Congressmen against the passage of this bill.

The Association has kept in touch with all bills and resolutions introduced during the last and present session of Congress and has taken action where necessary.

New York Factory Laws

On account of inquiries received from members in the State of New York on the factory laws as pertaining to "One Day's

FRANK H. MILHAM, President
JAMES H. WRIGHT, Ass't to President
C. A. HUBBARD, Mgr. of Sales
NOAH BRYANT, Vice-President
C. A. FOX, Sec'y and Treasurer

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INTERNATIONAL PAPER COMPANY

30 Broad Street

New York

To the Holders of Bonds and Preferred and Common Stock:

The International Paper Company hereby gives notice that it has prepared a *plan for the consolidation of its bonded debt under one mortgage*, and offers bondholders the right to exchange present bonds for new First and Refunding Five Per Cent. Sinking Fund Mortgage Bonds, as set forth in a circular letter, dated January 31, 1917, addressed to the Company's bondholders.

The Directors of the Company have also unanimously voted to offer to Preferred Stockholders, in full settlement of all deferred dividends—

7½ per cent. of the face value of their holdings of Preferred Stock in cash,
14 per cent. in Six Per Cent. Cumulative Preferred Stock,
12 per cent. in Common Stock,

provided, however, that the holders of such an amount of Preferred Stock as the Company and the Committee representing the Preferred Stockholders shall deem sufficient, shall accept said offer by depositing their stock with Bankers Trust Company, Depositary, 16 Wall Street, New York, subject to a Deposit Agreement bearing even date herewith. Copies of this Deposit Agreement, including circular letter to Stockholders, outlining in detail the plan of adjustment, and copies of letter to the bondholders may be obtained upon application to Bankers Trust Company, Depositary, or from the International Paper Company, whose officers will be glad to answer any inquiries or give any further information that may be desired.

Copies of letters and Deposit Agreement are being mailed to Stockholders of Record and to Bondholders whose names are known to the Company.

Dated January 31, 1917.

PHILIP T. DODGE, *President.*

To Holders of Certificates for Shares of Preferred Stock of the International Paper Company:

At the request of the International Paper Company and of holders of a substantial amount of its preferred stock, who have already approved of and assented to the plan for the payment and refunding of the bonded debt of the Company, and the adjustment of the deferred dividends upon its preferred stock referred to in the foregoing notice, and subject to the terms of the deposit agreement therein mentioned, we have consented to act as a Committee to represent the holders of such preferred stock in the execution of the said plan.

We recommend the proposed plan and the acceptance of the offer made by the Company to adjust the said dividends, and trust that prompt co-operation of the stockholders will be received.

Holders of preferred stock are urged to immediately deposit their certificates, duly endorsed for transfer in blank or accompanied by proper instruments of transfer, with the **Bankers Trust Company, Depositary,** 16 Wall Street, New York City. Such deposit will impose no expense upon the stockholder, and without further act on the part of the stockholders depositing will constitute their assent to and approval of the financial plan and the proposed adjustment of the deferred dividends, and all the terms of the deposit agreement.

Negotiable certificates of deposit will be issued by the depositary, and application will be made to have such certificates listed upon the New York Stock Exchange.

Unless the Committee and the Company shall hereafter extend the time, no deposits will be received after **March 1, 1917.**

The Secretary of the Committee will be glad to answer any inquiries or give any further information desired by any stockholders in regard to the foregoing.

Dated January 31, 1917.

Counsel:
STETSON, JENNINGS & RUSSELL,
New York City.

Secretary to Committee:
OWEN SHEPHERD,
30 Broad Street, New York City.

Depositary:
BANKERS TRUST COMPANY,
16 Wall Street, New York City.

Registrar of Certificates of Deposit:
CHASE NATIONAL BANK,
57 Broadway, New York City.

F. N. B. CLOSE, Chairman,
GATES W. McGARRAH,
SAMUEL McROBERTS,
OGDEN MILLS,
RUDOLF PAGENSTECHER,
E. V. R. THAYER,
ALBERT H. WIGGIN,
Committee.

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BRANCH OFFICES:
BUENOS AIRES
VALPARAISO
HONG-KONG
TOKIO
CALCUTTA
MELBOURNE

Rest in Seven," a copy of the law was secured and sent to every manufacturer in the State for his information and guidance.

Dyestuff Situation

The various domestic dyestuff manufacturers and associations representing consumers have held numerous meetings, nine in all, during the past year on the question of the shortage of dyestuffs with the hope of securing some relief.

A committee was appointed for the purpose of endeavoring through the State Department to prevail upon the German Government to release consignments of dyestuffs, arranging movement to this country by permission of the British Government. The efforts in this respect, however, proved entirely fruitless.

This committee also gave attention to the question of the Hill Bill, which provided a duty on dyestuffs, and when it was found that there was no possible chance of this bill being enacted into law, the committee then made further efforts by conferences with special committees of the House and Senate to secure some kind of legislation that would afford protection to the dyestuff manufacturers after the war.

The Department of Commerce, through Dr. E. E. Pratt, assisted the committee in its work. The result of the efforts of this committee was the passage of the dyestuff measure in the General Revenue Bill.

While the legislation as encated was not entirely satisfactory, it was the very best that could be secured through the present administration at Washington.

The Secretary of this Association attended all the conferences assisting with the work.

Shortage of Rags and Paper Stock

The question of the shortage of rags and paper stock has been given careful attention by the Association.

The Secretary called upon the Secretary of the Department of Commerce at Washington and explained the seriousness of the situation and requested the aid of the Department in bringing the conditions to the attention of the public, with the view of persuading the people in this country to save their rags and waste paper.

The Association has also been instrumental in bringing the matter to the attention of the various trade and commercial organizations as well as others interested, with the result that considerable relief was experienced.

The Association requested the Department of State at Washington to use its efforts to have the French Government raise its embargo preventing the exportation of rags to this country.

The Association made request upon the Chairman of the Southern Classification Committee for a change in the classification on rags in bales and bags to permit the shipping of rags in small lots from small Southern towns to the large collection centers.

At the request of Secretary Redfield of the Department of Commerce, your Secretary attended a meeting in New York on April 29, at which Dr. Pratt of the Department was present for the purpose of discussing what could be done to assist in the collection of rags and paper stock in connection with the publicity campaign.

The Secretary of the Association also attended two other special meetings on the question of the shortage of rags.

Fourdrinier Wire Situation

On account of the seriousness of the wire situation, the Association appointed a special committee, consisting of F. L. Moore, Alfred Leeds, Frank L. Stevens, to meet with a committee of the Canadian Pulp and Paper Association to consider the question of the shortage of Fourdrinier wires, and the action to be taken to relieve the situation.

Two meetings were held, a committee of the wire manufacturers being present at the second meeting.

The situation was thoroughly discussed and, while no immediate relief was promised, the committee of the wire manufacturers gave assurance that they would do everything within their power to meet the requirements of the paper manufacturers.

Assurances were given by the wire manufacturers that no wires would be exported to the detriment of the domestic paper manufacturers.

British Embargo on the Exportation of Old Manila Rope

The Association requested the Department of State at Washington to use its efforts to have the British Government raise its embargo preventing the exportation to this country of old manila rope for use in paper making.

The question was also taken up with the British Paper Makers' Association of London, England. Nothing has as yet been accomplished, but it is being given necessary attention.

Disinfecting of Imported Bagging

The Secretary of the Association was present at Washington, representing the paper industry at the hearing before the Board of Agriculture on June 30, with regard to the order of the Board requiring that all foreign bagging be disinfected upon arrival.

A temporary extension of six months in the application of this rule was secured.

The Board finally modified the order sufficiently to relieve the inconvenience to the users of this class of material.

Freight Embargo

The Secretary of the Association was present at Washington at the hearing of the Railroad Companies and Shippers before the Interstate Commerce Commission on the question of the Freight Embargo.

Traffic Matters

While the Association does not maintain a traffic department and cannot, on account of the nature of its organization handle traffic matters, it has, through its Secretary, endeavored to keep in touch with all rate matters of interest, so as to keep members fully informed.

The Secretary of the Association has attended seven meetings of the Tissue and Toilet Paper Traffic Association and has rendered every assistance possible in connection with this work. The Secretary of the Association has also answered a great many inquiries from members treating with the question of rates.

The Secretary of the Association was present at Atlantic City at the meeting of the Southern Classification Committee when the question of the change in the classification on rags in bales and bags from Southern points was considered.

Tompkins Patent Suit

The Association for the past three years has been handling for certain of its members the so-called Tompkins Suit, which covered a test suit brought by John D. Tompkins against the St. Regis Paper Company and twenty-two (22) other defendants, alleging infringement of a patented process for the manufacture of wood pulp. This case has now been disposed of, the decision of the District Court of Appeals being in favor of the defendants.

All bills have been paid and the account is closed.

National Industrial Conference Board

The Association in accordance with the authority of the Executive Council accepted membership in the National Industrial Conference Board, appointing A. B. Daniels and C. A. Crocker as a committee to represent the Association on the Board.

The National Industrial Conference Board is composed of fourteen leading associations of manufacturers and also a number of industrial concerns, several of them being members of this organization. The purpose of the Board is to secure close co-operation and joint action in all National matters of interest to the manufacturing industries.

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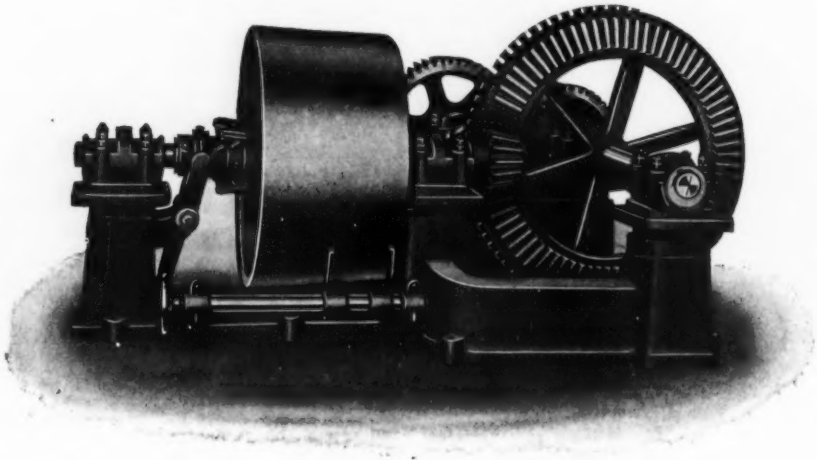

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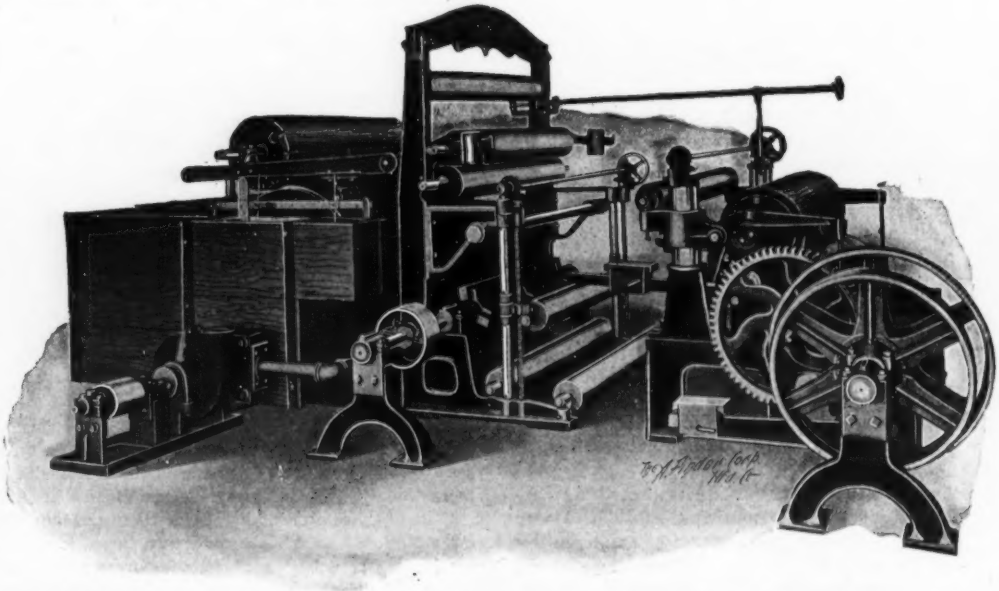

We also build a complete line of cutters for Cloth and Paper Mill work, and Paper Bag Making Machinery, Die Presses, etc. Write us for information, illustrations, prices, etc., before buying.

The Board has held eight meetings during the past fiscal year, which meetings were attended by either Mr. Daniels or Mr. Crocker, or both.

Chamber of Commerce of the United States of America

The Association maintains a membership in the Chamber of Commerce of the United States of America, Washington, D. C., and through its special committee works with the Chamber in all matters of National importance.

Referenda

The Association, through its special committee, has voted on the following referenda of the Chamber of Commerce of the United States of America:

No. 12 Seaman's Act.
No. 13 Maintenance of Resale Prices.
No. 14 Federal Aid for Vocational Education.
No. 15 National Defense.
No. 16 Railroad Situation.
No. 17 Combination as Related to National Resources.
No. 18 Amendment of the Federal Constitution to permit the President to veto separate items or provisions in appropriation bills.
No. 19 Prevention of Strikes and Lockouts.

Vocational Schools

The Association has kept in touch with the various Vocational Schools with the view of securing employment for students in paper and pulp mills.

National Safety Council

The Association is a member of the National Safety Council and has assisted the officers of the Paper and Pulp Section in the development of the work and increasing the membership of the section. At the present time the membership of the section numbers one hundred and twenty-three companies.

New Associations

The following associations during the past year have affiliated themselves with the American Paper and Pulp Association:

Binder Board Manufacturers' Association.
Converters' Division—Tissue Paper Manufactures' Association.
Sulphite Bond Division—Writing Paper Manufacturers' Association.
Vegetable Parchment Manufacturers' Association.
Waxed Paper Manufacturers' Association.

Babson Statistical Organization

The Association subscribes for the service of the Babson Statistical Organization. Under the arrangement made, members of the Association who subscribe for this service receive a discount of 25 per cent. from the regular rates. This has created an annual saving for the subscribing members of $807.20.

Proudfoot's Commercial Agency

The Association maintains a membership with Proudfoot's Commercial Agency. During the past year thirty (30) reports have been received through this source for inquiring members.

Library

A library is maintained in the Association rooms in which are filed all publications of interest to the paper and pulp manufacturers.

During the past year ninety-three (93) publications have been added to the library.

Periodicals

The Association subscribes for twenty-eight (28) magazines and periodicals for the benefit of the various secretaries and members.

Meetings in Association Rooms

During the past year forty-two meetings of various associations have been held in the rooms of the General Association in New York City.

Calls by Secretary

The Secretary of the Association has made seventy-one (71) calls upon members during the past year.

Calls on Secretary

During the past year 218 members have called at the Association rooms.

Meetings Attended by Secretary

The Secretary of the Association, during the past year, has attended fifty-six (56) meetings on matters of interest to the paper and pulp industry.

Some of the Important Circulars Sent Members

Report of Joint Conference Committee on Dyestuffs and unfair competition.

Circular of July 26—Southern Pine Association on Proposed Amendments to the Federal Income Tax Law in house bill No. 16763.

Report of Bureau of Census. Census of Manufacturers 1914 Paper and Wood Pulp Products by States, years 1904, 1909, 1914.

Article from the *Economic World* of July 22, 1916, entitled "Immigration After the War" by Frederick C. Howe, United States Commissioner of Immigration.

Pamphlet issued by Federal Trade Commission entitled "Fundamentals of a Cost System."

Article from New York *Journal of Commerce* of September 12, entitled "Trade After the War."

Three circulars on Anti Efficiency Legislation.

Article from *Saturday Evening Post* of July 8, 1916, entitled "Saving Waste Material."

Circular on Combination for Export Trade.

Copy of letter addressed to Secretary Redfield, Department of Commerce, by Conference Committee on question of dyestuffs.

Circular on Tariff Commission Legislation.

Circular on Freight Embargo and Congestion.

Circular on Shortage of Rags and Paper Stock.

Pamphlet issued by Department of Commerce on Saving Waste Material.

Copy of speech delivered by Hon. E. J. Hill in the House of Representatives in connection with dyestuffs bill No. 702.

Circular regarding the appointment by the Department of Commerce of a representative to visit South America for the purpose of investigating paper and pulp markets.

Circular on proposed amendments to the dyestuffs bill.

Copies of seven addresses delivered by members of the Federal Trade Commission on Trade Associations, Commission Activities, etc.

Copy of report of Federal Trade Commission on co-operation in export trade and competitive conditions in interstate commerce.

Report giving the domestic exports of paper and pulp by countries of destination for ten months ending with April, 1916.

Circular to all paper and pulp manufacturers on the organization and work of the Paper and Pulp Section—National Safety Council.

Pamphlet to all paper and pulp manufacturers giving the proceedings of the Paper and Pulp Sectional Meetings—National Safety Council, held at Detroit, Mich., October 19 and 20, 1916.

Circular to all associations in the paper and pulp industry on the question of the Income Tax.

Circular to all paper and pulp manufacturers on the work of the Newlands Committee appointed by Congress to investigate the railroad situation.

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ONION SKIN *and* MANIFOLD

Are made of new cotton and linen rags in a well equipped mill that is operated with a fixed purpose to produce

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A. W. ESLEECK, President — IRVING N. ESLEECK, Vice-Pres.
H. McC. KNICKERBOCKER, Treas. — WM. P. PERRY, Secretary.

Circular to all members on testing of pulp for color and strength.

Sent to all members copy of address by T. D. McCloskey, General Counsel for the National Association of Sheet and Tin Plate Manufacturers on the question of contracts.

Sent to all members copy of report of the Cost Committee of the American Paper and Pulp Association with regard to cost accounting.

Circular to all members on organization and work of National Industrial Conference Board.

REPORT OF THE COST COMMITTEE

The cost committee submitted the following report:

The Cost Committee of the American Paper and Pulp Association was appointed by the president of the association on order of the Executive Committee, at the suggestion of the Federal Trade Commission.

The committee was formed of one member appointed from each division of the American Paper and Pulp Association, with members from allied association, such as the book division, and some care has been taken that these representatives should be men of experience along accounting and cost system lines.

The Federal Trade Commission, having investigated the general industrial situation of this country, and having discovered and proclaimed in statistics, already well known, that only a very small per cent. of manufacturers had in operation cost systems worthy the name, have undertaken through association work to introduce this most essential factor to the intelligent conduct of modern business.

The Executive Committee of your association is, through this committee, attempting to co-operate with the Federal Trade Commission, in the earnest belief that this will be the beginning of a thorough co-operation on the part of all the members in the association with a great benefit to themselves, and to the buying public.

Box Board Division.—J. W. Bottscher, auditor, United Paperboard Company, 171 Madison avenue, New York City.

Binders Board Manufacturers' Association.—W. O. Davey, secretary, W. O. Davey & Sons, Jersey City, N. J.

Pulp Manufacturers' Association.—H. E. Fletcher, secretary-treasurer, Fletcher Paper Company, Alpena, Mich.

Writing Paper Manufacturers' Association.—Chairman B. A. Franklin, vice-president, Strathmore Paper Company, Mittineague, Mass.

Glazed and Fancy Paper Manufacturers' Association.—G. Frank Merriam, president, Holyoke Card and Paper Company, Springfield, Mass.

Tissue Paper Manufacturers' Association.—W. E. McIntyre, treasurer, McIntyre Bros. & Roudebush, Fayetteville, N. Y.

Cover Paper Manufacturers' Association.—S. S. Rogers, assistant treasurer, Chemical Paper Manufacturing Company, Holyoke, Mass.

Book Manufacturers' Association.—Roger D. Smith, manager of sales, S. D. Warren & Co., Boston, Mass.

Ambition of the Committee

It is the particular ambition of this committee to accomplish, as a result of this report, a very definite step forward in the efficient conduct of the paper industry, since it believes that the introduction of a comprehensive and uniform cost system for general use will prove of permanent benefit.

For this purpose it specifically invites every member of the association to very seriously consider this report in relation to his own particular business, either in the establishment or the refinement of his cost system.

It is realized that practically every plant has some kind of a cost system, and perhaps many have very good ones. But while this is true, an extremely essential point is that uniform methods be established, so that competitors may be quoting on exactly the same basis.

To each one this report represents an opportunity to hesitate and decide whether his system will meet the test—

1st—That it is complete and proved with the books.

2nd—That it is discriminating as to furnish, size, weight, color, finish and process, since each of these makes for a differential in cost.

3rd—That its operation is uniform with other mills.

It is the belief of the committee that the work should be carried along for some four or five years in order to accomplish the greatest good, and the committee has arranged that for each division there is appointed a cost committee which will work from the general scheme submitted herein to a definite plan suitable to the particular details of the grades made in that division.

As far as possible each member of this committee is made the chairman of the Division Committee, with the definite idea in mind that no detailed plan of cost system can be made to meet all the variations of operations and methods of all classes of paper manufacturing, but the general plan can be worked out in detail in each division. This report is general in scope and only particular as to the principles upon which all adequate cost systems must be founded.

The detail is left to each division to work out for itself with its own committee along the lines laid down, with the expectation that uniformity will be gained if they follow the general plan herein shown.

Absolute Need of Cost

Increasing competition, especially in after war conditions compels for each manufacturer, not merely that he have some kind of a cost system, but that he have an accurate, discriminating, non-averaging system from which he can gain three advantages—

1st—A basis for cost reduction.

2nd—A basis for discovery of what he makes best and most profitably, and of those items on which he loses.

3rd—A basis for intelligent merchandising.

What double entry bookkeeping has proven to accurate business conduct, cost keeping will prove to accurate manufacturing and selling.

The greatest hindrance to the introduction of the right, or indeed any cost system, has been that manufacturers have not been able to see the real value of the cost system as a profit making investment.

A manufacturer buys a machine, because it operates on a known method in full view and is guaranteed to produce a certain result.

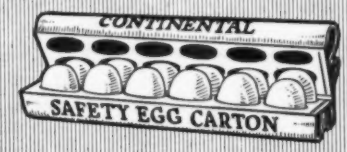
The manufacturer does not understand the cost system fully and has to take it on faith. He has been too practical to take it on faith and not acute enough to investigate and try. While a cost system is really a most valuable piece of machinery, it cannot in relation to any particular plant, be tried before using. It must be built on faith. Manufacturers have not had sufficient faith.

The manufacturer has not yet learned, except where he has had the actual experience, that his best judgment and common sense, and that of his organization, cannot produce results that a cost system can.

Experience has invariably proven that the cost system, if right, shows that figures previously assumed, said to be, or judged to be true are very frequently incorrect, and that it alone produces the true facts.

There are many conditions at the present time and during the past two ears, in dealing with which the cost system, in places where it was operated intelligently, has meant thousands of dollars extra profit.

The future with its after-war conditions and world readjustments, with its foreign trade possibilities, and possible European dumping policy, presents even more clearly the absolute necessity



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of the right cost system as a basis for the most economic manufacture.

The greatest work of this report it is hoped will be accomplished, not in the actual devising of a cost system, but in persuading members of the American Paper and Pulp Association of the real need of a uniform cost system to them, and of its economic value to the industry.

Economical Value of Cost System

It is desired to bring to the attention of all members the fact that a cost system, operated rightly and discriminatingly, offers a real basis for the most economic operation and reduction in cost, and that the cost system, merely as a basis for selling, offers a no more valuable investment than it does as a basis for cost reduction.

This is to say that not merely does the right system offer the manufacturer the knowledge of what his paper costs as a basis for gradually bringing his selling prices to a profitable point, or barring this, of replacing them with profitable lines, but still further it offers him the facts of operation in such a way as to lead him to changes producing definite economies and improvements.

Attention is called to the fact that cost systems may be simple and gotten up in such a way as to make the important figures prominent and quickly absorbed, and the details so arranged as to be brought forward as desired by the executives. A definite means of accomplishing this is the devising of simple, understandable and quickly getatable forms, showing important facts first.

The cost system should be so laid out and presented that the figures of cost of operation, production, wastes, etc., are always at hand for constant comparison. Such comparisons invariably lead to economies which make a cost system a highly profitable investment.

How to Get a Cost System

Your committee definitely suggests from experience that the best way to get a cost system is to engage the services of reputable cost accounting experts. It is admitted that the cost of doing this sometimes seems exorbitant, but almost universally it is a paying proposition, much exceeding in value the method too frequently employed of putting the whole matter in the hands of, let us say, earnest, but inexperienced clerks. The building of the cost system is as much a proposition demanding education and experience as the making of a sheet of paper. No manufacturer would undertake to build a paper machine, however well he may understand how to get results from it when in operation. Nor would he undertake to install even an up-to-date bookkeeping system. He would arrive at some result if he tried to do either, but quicker and better results are obtained when the work is done by those who make it a profession.

Where Some Cost Systems Fail

It is desired to point out that many concerns assemble masses of figures, or have means of estimating with what they call a cost system, which lacking certain elements is sometimes very dangerous to profit making.

The first failure in this direction is the operating of a cost system without proof. Every manufacturer operates a set of books in the bookkeeping department in which he has implicit faith because they are balanced.

The cost system should be absolutely tied to the bookkeeping so as to check the fact that every expenditure made by the company enters into the cost keeping system.

Only by checking with the books can it be known positively that all materials bought, all supplies used, and all labor paid for are accounted for in the cost system as well as the bookkeeping system.

The very first essential of the cost system, therefore, is the proof with the books, and no cost system should be formed without this.

The second failure in cost system, even where the proofs are furnished, is the averaging of the cost of a particular operation or group of operations or expenses, or materials over grades of paper not exactly alike in size, weight, finish or color. Such averages, of course, merely merge the high and low costs together in such a way as to mislead.

Even the merging of two or three lots of the same paper very frequently hides the high cost of one lot by averaging it with the low cost of another.

A third failure is that certain expenses (the application of which to a definite lot of paper or operations may not be clear) are averaged over a large production on the pound or ton basis, and thus the true discriminating value may be lost. The proper method of handling expense is shown under the heads Manufacturing Expense and Selling Expense.

A true and discriminating cost system is one which proves up with the figures of the books and takes account of all of the differences due to furnish, size, weight, finish, color, and treatment of different lots, and places expense on each lot in a discriminating way.

The Fundamental Elements of Cost System

The elements into which a cost system divides all production and sales expenditures are fundamentally four:

Material	Manufacturing Expense
Labor	Selling Expense

A right system takes consideration of each of these elements separately, arranges for their complete and correct collection, a proof through the books, and their distribution to cost of product. A right understanding of these four elements separately makes simple the understanding of a cost system.

Material separates itself into two divisions as shown under "Material."

Labor also separates itself into two divisions as shown under the head of "Labor."

Manufacturing Expense covers all other items of expenditure, as discussed under "Manufacturing Expense," to bring the goods to the mill door.

Selling Expense covers all those items of whatever nature, including cash discounts, that are necessary in marketing the goods.

Material

Material here, so called, means only that material which becomes a part of the finished product, or by measurement, weight, or count can be definitely charged in reasonable relation to the finished product. All other materials are to be considered as expense items.

Such a division makes two distinct classes of what is generally known as material:

1st—Those items which can be measured out for each lot of paper kept separate in the accounting, come under Material Cost.

2nd—Those items which are necessary to the carrying-on of the work of paper making, but which apply to the whole generally and not to a particular lot of paper, come under Expense, and are applied to cost as such.

In the matter of material, two important points are worthy of consideration.

First, even at some expense, all material must be measured, weighed, counted and checked at various points against the amount ordered used, in order to make sure that all used enters into the costs. The assumption that certain amounts are used without proper check that they are correct leads always to error and loss. If as material arrives in the original package, it is labeled or tagged with a serial number and the weight, it can readily be followed and checked from a card record.

STANDARD MILL CONSTRUCTION is no longer religiously adhered to in the erection of the modern paper mill. Rather new standards in the way of increased lighting, improved ventilating and more advantageous placing of machinery have been created.

These new developments are of decided interest to mill owners, owing to the resulting marked increase in production *at a lower operating cost.*

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Second, in order to properly check the reports of material used, the material accounts in the ledger should be operated under the names of the main items, as rags, pulp, etc., etc.

These accounts should be started with a correct inventory, the purchases each month are to be added and the daily reports of use are to be figured up to give monthly for bookkeeping, and for cost purposes the amount and value of materials used. This will result in ledger accounts showing on one side inventory plus purchases and on the other amounts used, leaving a balance on hand.

At inventory periods the value of materials on hand should agree within a narrow margin with the ledger accounts. Such a method will show and check both costs and wastes.

The weighing and checking of materials at various points will make the wastes at such points known for waste reduction purposes, as well as cost knowledge, and invariably brings economies.

Material application to cost and bookkeeping is the simplest to understand of the three elements, but the most difficult to keep track of and to get correctly. Only a definitely developed and conscientiously carried out system of weighing and checking will accomplish it.

Labor

Labor is separated into two divisions, direct and indirect, from the cost point of view. Only direct labor is classified as labor and is to be interpreted as meaning that labor which is definitely chargeable to the specific lots of paper as they go through the mill.

Indirect labor, meaning such miscellaneous help as repair gangs, yard gangs, oilers, watchmen, cleaners, foremen, etc., as cannot be charged definitely to the specific lots of paper, is to be considered as an expense item and goes into Expense.

The sure way of handling labor cost is to analyze the payroll each week into direct and indirect, charging the indirect to expense to be handled as described under "Expense," and the direct to specific lots of paper.

Direct labor costs require time card systems to show labor operation costs where such operations are not one piece-work, or some other method which readily gives this cost. Washer, beater, or paper machine labor, or the labor on any machine may be shown as a cost per washer hour, beater hour and machine hour, in which case it must be known of a given lot of paper or pulp how many hours of these machines were occupied by that lot. The application is then plain.

The paper manufacturing business lends itself in its labor operations very readily to the obtaining of labor costs without much clerical labor in gathering it. It is no great task to find, for example, the labor cost per hour for operating the paper machine, either for the week, month, or other period.

This labor cost per hour, multiplied by the number of hours the machine ran on a particular lot, gives the machine labor cost for that lot and may readily be reduced to cost per pound. Care must be taken, however, to figure the hour cost, not only on the time the machine is actually producing, but on the full time it was involved with the particular lot.

Manufacturing Expense

Manufacturing Expense includes all expenditures incurred in manufacturing, other than capital charges and those for Material and Direct Labor, which as previously shown are applied direct to the individual orders.

Since Manufacturing Expense seems to have no direct and easily defined relation in costs, it has always been the stumbling block in cost systems, both as to the getting of it all into costs and getting it properly applied.

There are three essentials in expense consideration:

1st—Method of Application.
2nd—Method of Division.
3rd—Method of Proof.

Manufacturing Expense Application, i.e., how to apply any particular expense to any particular lot of paper, has been one of the cost system problems.

Two facts are apparent, however:

1st—That manufacturing expense varies in operations. This is plainly to be seen, of course, and markedly so, as between high-priced machine operations and hand work. The machine takes power, repairs, supplies, etc., while the hand work takes only perhaps small supplies. It is evident then that expense should properly be kept separate as to operations.

2nd—That manufacturing expense varies as time. This is particularly so in the matter of indirect labor, supervision, etc., which is paid by time, and it is very apparent that the cost of a machine operation varies by the hour.

The logical method then, is to apply expense by operation and show its cost by operation hours.

While the hour cost is probably the best method of application, there are operations where it is satisfactory and easier in the accomplishment to show the expense of operation in a per cent. relative to the direct labor of the operation, instead of dividing the expense by hours. Both methods are shown in the forms described under Expense Analysis.

There are certain expenses, such as packing and shipping, however, in every plant, which are plainly applicable to the final product in a direct way. These are exceptions and are to be handled as such.

Manufacturing Expense Division is accomplished by fixing for each plant the departments of like operation, so that expenses can be applied to such division.

A list of such departments with the addition of general expense depreciation, power and repair, makes for a right start on an expense analysis which can be accomplished monthly and collectively by months, as shown on attached forms.

This division made, the next essential is to get monthly the reports of the operative hours of these departments, such hours being the addition of the hours productively employed by the direct labor in the department.

The expense divided by the hours gives an hour cost of expense, as shown on the forms attached.

A quite usual way in the paper business is to handle expense in a dozen or so items, and find out the cost per pound or per ton. This is an averaging method which does not produce the true cost of individual runs.

A much more correct method, because it is discriminating and puts the expense where it belongs, is the method of dividing the expense according to operations or departments of operations as shown, and while this method is a little more difficult to understand at the start, in the end it is very simple and is a strong factor in cost reduction, besides giving a much more true article cost.

It must be plain from a little study of the forms attached that a complete and comparative analysis of the expense is made, which offers many opportunities of cost reduction.

One division of expense about which it seems desirable to speak a special word, is General Expense.

It has been shown in the text and through the forms how operation or department expense is detailed and may be applied to order costs.

Elsewhere, also, is shown how depreciation and investment charges and power expense are directed against particular operations.

Under the head Depreciation and Investment Charges the necessity and amounts of the charges are discussed.

There is, however, still left a general expense consisting of items of administration, executive, general supervision, and other items which apply to the whole manufacture.

Following the described method of expense application, this expense must apply to all operations.

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General expense is, therefore, collected as shown in the forms attached, and should be distributed to individual order cost, either as an hour cost in relation to the total direct hours of the whole plant, or as a per cent. to the total direct labor of the plant.

When a company operates more than one mill, it may be found desirable to have a general expense for each mill, same being items applicable generally to each mill and a general expense separately applicable to all.

Method of Proof of Manufacturing Expense. In the ledger should be kept one account "Manufacturing Expense." This account, as kept in journal or voucher register, should have each entry explained so that once a month a cost clerk can readily analyze it into departments of operation and prove the whole with the books.

Once this scheme is worked out, Manufacturing Expense, the most difficult of application, becomes the easiest of the three elements to operate.

Depreciation

It is a matter of plain observation and common sense that buildings and machinery as time goes on and use wears them out, are arriving closer and closer to the point of replacement.

It is plain that each year the value of a plant tends to decrease in value.

This decrease is called depreciation. It is not always easily measured, as are material, labor, and expense, but it is just as surely an element of cost, because it is the consuming of money value already invested which eventually will have to be replaced, either because of wearing out or of the necessity to replace with better types.

This depreciation has then a right and natural place in costs.

There are many ways and methods of measuring depreciation, but none that ever prove absolutely accurate.

It is advised, therefore than 5 per cent. of the plant and machinery value be used by paper manufacturers as being sufficiently accurate and uniform.

Form D shows the method of division, depreciation being set down for the whole plant and assessed against each department, according to its ratio of investment to the whole.

Investment Charges

No paper plant can operate without storing up for months large supplies of raw materials and finished stock.

It seems fair that a proper element of cost should be the fair interest on the money invested in this while it is lying idle.

It is, therefore, advised that in the interest of uniformity a 5 per cent. interest charge on the average value per year tied up in raw material be added as a cost per pound, depreciation taking care of plant investment.

Expense Analysis

As explained under Manufacturing Expense, expense is detailed and applied by operations or departments of operation.

This division leads to an analysis of the actual expenses every month by such operations or departments of operation known as an Expense Analysis. Such an analysis is illustrated by Forms A-B-C-D-E-F merely as examples.

Form A illustrates the method used in those departments where the hour cost of labor and expense is used.

Form B illustrates the method used in a department of operation where the per cent. relation of expense to direct labor is used, as is sometimes desirable even though the hour cost is the more equitable.

There will be in an expense analysis as many such forms as there are departments of operation.

In the paper business it seems wise to separate the year into two periods of six months.

These analyses then will preferably start with January, showing each of the six months comparatively, as illustrated in light face figures, and the period in the addition of the months to date in heavy face figures.

Form C shows the analysis of the power cost and its distribution among the departments according to its average use.

Form D shows the analysis of the insurance, taxes and depreciation and their distribution to departments of operation according to value of investment in such departments.

Form E shows the analysis of general expense and its relation either to hours or direct labor.

Form F shows the analysis of selling expenses and their per cent relation to value of sales.

It is apparent that such an analysis offers many important values:

First, the totals of all departments of operation added offer comparison with bookkeeping figures for proof.

Second, the per cents or hour cost offer a means of adding to each lot of paper that goes through such operation the just and the fair amount of expense due to that operation, and only to such lots of paper.

Third (and of greatest value), such a method offers the same details of expense month after month and period after period in such a way as to make easy a study of this difficulty controlled element for cost production.

Selling Expense

Selling expense has to do with all of those expenditures that are necessary in the disposal of the goods, such as advertising, salesmen's salary and expense, delivery, etc., as shown in the form attached.

The application of such a charge to a particular sale is not usually plain and complete, but it is clear that such expenses are applicable to the total sales for a period.

The selling expense is, therefore, shown in a per cent relation to the total sales, and after the factory cost has been found, the selling expense is to be added separately as a per cent of the sale price.

Final Order Costs

Material cost, labor cost and expense cost have been discussed. These costs are valuable as a means of controlling and reducing cost. The manufacturer, however, wants and needs the individual order cost and this is obtained by putting together the details as they apply to the particular order.

In the matter of material, the furnish and the record of all material used in the lot are set down.

In the matter of labor, the figures are obtained from the labor records for each operation from beginning to the end.

In the matter of manufacturing, the per cents of expense to direct labor, or hour, or machine hour, or operation costs, are set down. These make the mill cost. To the mill cost must finally be added selling expense to arrive at final order cost. Added together then we get the final order cost in the combined detail of material, labor, manufacturing expense, and selling expense as shown on the chart.

That mill which keeps its cost by grades, weight and sizes instead of by averages, will soon discover many cost variations which it can work to its advantage.

The question arises in using the expense figures for final order costs as to what hour cost or per cents shall be used.

These figures fluctuate from month to month, and, of course, their average is best worked out in periods starting fresh every six months.

Nevertheless there are dull periods when expense per cents are high and rush periods when they are low. Logic points out that the best figures of expense to use in calculating final order cost, are those best representing normal times, a normal time for any mill being that time when it was last running reasonably and con-

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tinuously to a standard regular production. Such a selected expense per cent, or hour cost, will do no damage when the demand is great and will permit fair competition in dull times.

Form G—Individual Order and Unit Cost

Form G shows a chart of the steps in paper cost. This form does not attempt to go into the detail of the four main divisions: Material and preparation, manufacturing, finishing and shipping, advertising and selling, since these details would be different in mills making different grades.

The chart illustrates, however, the general method of lot cost, collection or pound cost figuring, and is applicable in any case where the detail of operation is supplied.

Selling Prices

It is an unfortunate fact, possibly, but nevertheless true, that selling prices are not always based on costs and often they are made by people who are ignorant of their costs. Prices are the product of the market, and in the long run the manufacturer must sell on the average market price.

Nevertheless, even under such conditions, a cost system showing final order cost will show each manufacturer which items he can sell profitably at the market selling price, so that he can specialize on those items. If all manufacturers have such a cost system, it will, eventually, accomplish this: that it will fix the market price on all items of papers, at least, at a reasonable per cent above the cost of that manufacturer who can manufacture cheapest, and will not leave the price at any point in relation to any particular article where unintelligent competition prevents manufacture at a profit.

In the long run, therefore, this is another great good to be obtained from a universal cost system.

Once a cost system is established and proved, the manufacturer can safely establish his selling prices.

Developed cost statistics offer the manufacturer a definite basis for estimating on all orders on which he is bidding, and if he obtains the business, gives him a standard to which he can work. Much damage has been done both to the manufacturer and industry by those who, without definite cost knowledge, go into the open market to offer and dispose of their wares.

It is, therefore, earnestly hoped both for the individual good and the good of the industry that this report will be given earnest consideration.

Form A

SUGGESTED FORM FOR MONTHLY EXPENSE ANALYSIS IN MACHINE DEPARTMENT.

	May		June	
	Month	Period	Month	Period
Stop Labor (being cost of Machine Labor not directly chargeable to final order cost)	$36.36	$260.75	$40.66	$301.41
Repair Labor	142.58	635.08	151.32	786.40
Repair Material	209.64	937.55	371.66	1,309.21
Supplies, Miscellaneous	1.17	190.31	72.62	262.93
Lamps	1.69	18.04	.54	18.58
Pails	.21	.44	.....	.44
Gloves	.31	.78	.05	.83
Brooms	.72	2.18	.25	2.43
Rubbers and Boots	6.70	6.70	5.80	12.50
Hose	.....	9.00	.....	9.00
Core Stock	58.41	58.41	.....	58.41
Wire Brushes	.....	1.70	.....	1.70
Soap Powder	7.35	18.25	3.46	21.71
Belts	.....	22.02	.38	22.40
Felts	98.70	955.96	203.95	1,159.91
Wires	150.97	452.88	.....	452.88
Dandy and Watermark Account	50.76	59.92	36.50	96.42
Oils	14.00	40.00	.....	40.00
Total Departmental Expense	$779.57	$3,669,97	$887.19	$4,557.16
Depreciation and Investment Charges	796.86	3,984.30	885.46	4,869.76
Steam (on Basis of Paper Dried)	870.09	3,595.82	1,023.00	4,618.82
Power	199.24	1,250.69	421.75	1,672.44
Total Direct Expense	$2,645.76	$12,500.78	$3,217.40	$15,718.18
Total Machine Hours	490	2,478	500	2,978
Total Direct Labor per hour	$1.125	$1.125	$1.125	$1.125
Total Direct Expense per hour	5.40	5.06	6.43	5.27
Total Cost per hour	$6.525	$6.185	$7.555	$6.395

Stop Labor as described above plus Direct Labor equals total Machine Labor. This form shows the method of arriving at labor and expense hour cost when such a method is employed.

Form B

SUGGESTED FORM FOR MONTHLY EXPENSE ANALYSIS IN SORTING DEPARTMENT.

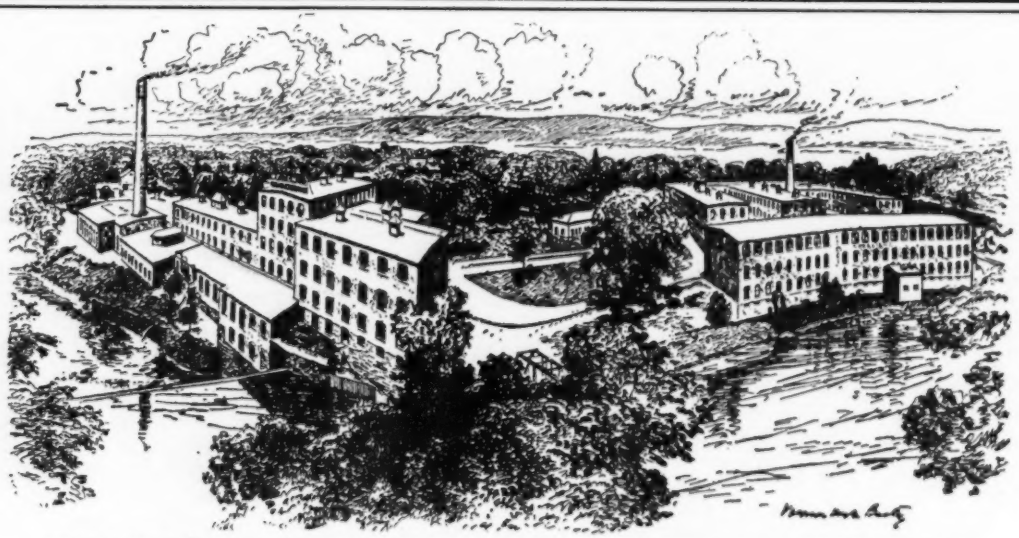
	May		June	
	Month	Period	Month	Period
Handling and Counting	$224.29	$984.41	$179.51	$1,163.92
Repair Labor	3.96	4.57	1.07	5.64
Repair Material	.51	1.70	14.05	15.75
Supplies	1.38	11.27	5.11	16.38
Gloves	.62	8.37	.37	8.74
Lamps	1.75	11.58	.75	12.33
Brooms	.25	1.42	.28	1.70
Soap	.21	1.28	.25	1.53
Total Departmental Expense	$232.97	$1,024.60	$201.39	$1,225.99
Depreciation and Investment Charges	12.20	61.00	13.54	74.54
Total Direct Expense	$245.17	$1,085.60	$214.93	$1,300.53
Direct Labor of Sorting	$425.43	$1,926.39	$312.35	$3,238.74
Per Cent. Direct Expense	58%	56%	69%	58%

This form shows the method of arriving at the Per Cent. of Direct Labor to Expense where such method is used.

Form C

SUGGESTED FORM FOR MONTHLY EXPENSE ANALYSIS IN POWER.

	May		June	
	Month	Period	Month	Period
Engineers	$108.00	$426.02	$151.74	$577.76
Stationmen	206.14	839.73	215.32	1,055.05
Firemen	437.41	1,621.90	488.75	2,110.65
Unloading Coal	126.68	455.57	88.79	544.36
Miscellaneous Labor	7.50	7.50	.....	7.50
Handling Ashes	12.04	41.97	.....	41.97
Oiler	55.15	252.37	56.52	308.89
Repair Labor	66.93	598.17	129.31	727.48
Repair Material	43.85	206.72	65.18	271.90
Supplies	1.26	58.36	4.95	63.31
Oils	20.31	90.33	95.67	186.00
Coal	936.59	7,118.86	1,062.57	9,954.08
Adj. of Coal at Inventory	.....	.....	1,772.65	
Total	$2,021.86	$11,717.50	$4,131.45	$15,848.95
Depreciation and Investment Charges	759.32	3,796.60	843.03	4,639.63
Total Direct Expense	$2,781.18	$15,514.10	$4,974.48	$20,488.58
Distrubution—				
Steam Charges—				
Dept. B	$23.94	$129.09	$42.34	$171.43
E	68.24	394.31	97.48	491.79
F (Machine)	870.09	3,595.82	1,023.00	4,618.82
G	40.00	228.00	46.00	274.00
	$1,002.27	$4,347.22	$1,208.82	$5,556.04
Power—				
Dept. A 3.3%	$58.70	$369.50	$124.26	$492.76
B .7%	12.45	78.16	26.36	104.52
C 26.2%	466.07	2,925.71	986.60	3,912.31
D 52.2%	928.59	5,829.11	1,965.67	7,794.78
E 1.1%	19.57	122.84	41.42	164.26
F (Machine) 11.2%	199.24	1,280.69	421.75	1,672.44
G .5%	8.89	55.83	18.83	74.66
H 1.1%	19.57	122.84	41.42	164.26
I 2.8%	49.81	312.67	105.44	418.11
J .4%	7.12	44.67	15.06	59.73
M .2%	3.56	22.36	7.55	29.91
O .3%	5.34	33.50	11.30	44.80
	$2,781.18	$15,514.10	$4,974.48	$20,488.58



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Form D

DEPRECIATION AND INVESTMENT CHARGES.

		Per Month
Taxes		$910.62
Insurance		525.75
Depreciation (5% on Plant Value)		2,081.63
Total		$3,518.00
Dept. A	11.5%	$469.75
" B	1.5%	60.69
" C	6.5%	264.27
" D	10.2%	414.98
" E	5.6%	227.67
" F	19.6% (Machine)	796.86
" G	2.1%	85.38
" H	2.2%	89.44
" I	1.1%	44.72
" J	.6%	24.39
" K	4.3%	174.82
" L	.3%	12.20
" M	.9%	36.59
" N	.4%	16.26
" O	1.0%	40.66
" P	32.2% (Power)	759.32
	100%	$3,518.00

Form E

SUGGESTED FORM FOR MONTHLY EXPENSE ANALYSIS, GENERAL EXPENSE.

	May		June	
	Month	Period	Month	Period
Office Salaries	$2,183.13	$10,811.97	$2,632.03	$13,444.00
Non-Productive Labor	349.52	1,536.89	380.46	1,917.35
Storekeeper	27.71	121.20	44.58	165.78
Watching	88.42	442.62	137.75	580.37
Waste Collecting	182.67	911.00	336.14	1,247.14
Miscellaneous Labor	74.95	259.39	169.53	428.92
Repair Labor	259.51	1,213.83	415.32	1,629.15
Repair Material	250.25	2,143.64	169.23	2,312.87
Supplies	138.79	485.60	72.55	558.15
Oils	.40	2.72	.....	2.72
Telephones	76.23	299.48	127.23	426.71
Office Stationery	53.16	60.56	14.25	74.81
Office Supplies	58.90	202.93	119.27	322.20
Miscellaneous General Expense	364.30	1,794.61	427.19	2,221.80
Freight (On Supplies)	160.03	992.14	153.02	1,145.16
Express (On Supplies)	80.04	360.57	95.72	456.29
Trucking	264.32	1,021.90	237.55	1,259.45
Total General Exense	$4,612.33	$22,661.05	$5,531.82	$28,192.87
Total Direct Labor of the Plant	$4,259.76	$19,945.59	$5,649.39	$25,594.98
Per Cent. General Expense to Direct Labor	108%	113%	98%	110%
Or by Hour Method—				
Total Direct Hours of Plant	15,776	71,236	18,831	90,065
Total General Expense	$4,612.33	$22,661.65	$5,531.82	$28,192.87
Cost General Expense per Hour	.293	.310	.294	.316

Both the hour and per cent. of expense to direct labor method is shown here.

Form F

SUGGESTED FORM FOR MONTHLY EXPENSE ANALYSIS, ADVERTISING AND SELLING EXPENSE.

	May		June	
	Month	Period	Month	Period
Salaries	$899.48	$4,727.55	$942.28	$5,669.83
Traveling Expense	86.81	742.47	666.00	1,408.47
Postage	100.21	563.24	107.99	671.23
Telegrams	35.03	365.29	54.99	420.28
Express	23.30	80.96	19.52	100.48
Freight	1,657.46	7,589.92	1,817.07	9,406.99
Trucking Paper	157.00	605.45	271.70	877.15
Selling Discount	3,300.72	12,622.74	2,217.42	14,840.16
Miscellaneous Expense	66.80	273.97	68.55	342.52
Allowances for Losses or Bad Accounts	214.28	1,050.85	184.78	1,235.63
Advertising	1,950.61	15,100.20	1,072.04	16,172.24
Total Expense	$8,491.70	$43,722.64	$7,422.34	$51,144.98
Sales	$85,708.00	$420,341.00	$73,914.00	$494,255.00
Per Cent. Sales	9.9%	10.4%	10%	10.3%

Form G

STEPS IN PAPER COST.

		Cost per lb. is figured on the finished product		
		Total Cost	Cost per lb.	
Cost of Materials Requiring Conversion				Cost of Material and Preparation
Plus				
Cost of Conversion Direct Labor and Direct Expense by Departmental Operations *Plus* General Expense	= Cost of Converted Material to Beaters			
Plus				
Other Materials Such as Size, Alum, Colors, etc. at Cost to Beater	= Total Cost of Material to Beaters	.....	.....	
	Less Credit for Waste Saved	.....	.....	
	Net Cost Material to Beaters	.....	.....	
Cost of Manufacturing Direct Labor and Direct Expense by Departmental Operations *Plus* General Expense		.....	.....	Cost of Manufacturing
Cost of Finishing and Packing Direct Labor and Direct Expense by Departmental Operations *Plus* General Expense		.....	.....	Cost of Finishing and Packing
Interest Cost per lb. × lbs. of Paper		.....	.....	Cost of Interest
Total Cost to Mill Door		.....	.....	
Advertising and Selling Expense % Advertising and Selling Expense to Value of Sale		.....	.....	Cost of Selling
Total Delivered Cost		.....	.....	

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PULP MANUFACTURERS MEET

On Wednesday morning the Pulp Manufacturers' Association held the most representative, enthusiastic and well-attended meeting in its history. Special interest was lent to the proceedings by an address delivered by Mr. F. E. Kessinger, from the lawyer's standpoint, on the economics in relation to the proper conduct of corporate business.

The following officers were elected for the ensuing year: Executive committee, J. E. Campbell, of the Dexter Sulphite Pulp and Paper Company, chairman; E. W. Kiefer, Port Huron Sulphite and Paper Company; T. J. Stevenson, Riordon Pulp and Paper Company, Montreal.

The active service of Maury L. Freeman, as Secretary, was recognized by his re-election.

Report of the Secretary

The record of the chemical pulp industry during the past year was perhaps the most impressive of any similar period within the recollection of any individual member of your Association.

Following a long and trying period of depression, that had its inception in 1913, which brought failure to some and seriously affected the harmonious and successful operation of many chemical pulp mills in the United States, the year 1916 opened up most auspiciously, bringing in its wake a better outlook, a keener and sharper demand on the part of consumers for supplies with which to meet their increased requirements, followed by a more generous realization of the value of a raw material that less than six months months before had been comparatively inert, and the manufacture of which was considered unprofitable.

Then came the European embargoes on the exportation of rags, bagging and other paper-making materials, the displacement of which gradually resulted in an increased consumption of all grades of chemical pulps, followed by an extraordinary demand from buyers in South America and other countries for domestic and Canadian supplies at figures that were decidedly tempting, but of which few domestic producers could avail themselves, most of them having already booked the bulk of their surplus output at decidedly lower values for a considerable period ahead.

The embargo on exports of chemical pulp subsequently inaugurated by Sweden and the steady decrease in importations from Europe, coupled with a constant increase in demand from all sources, brought a general upward trend in values for "spot" supplies of imported pulps, which higher values ultimately found their reflection in the Canadian and domestic product by virtue of advanced wages, increased cost of pulp wood, coal sulphur, bleaching powder, felts and other miscellaneous supplies, including advances in freight rates.

General Activities

Members are, no doubt, familiar with the data contained in the weekly bulletins, a service that has continued without interruption since the writer inaugurated it some two and a half years ago. The chemical pulp imports shown therein are carefully classified from the very crudest data furnished to us at each port of entry and require the undivided study and attention of your Secretary in order to determine the exact classification and tonnage represented by each shipment.

For the confidential information of members, special bulletins have also been issued during the year, showing the estimated tonnage of European pulp held on dock, whenever such data was reasonably available.

Monthly Statistics

Extended consideration was given to the data embodied in the reports that at that time were being issued to members, which appeared to be inadequate. The Chairman of your Executive Committee authorized a new form of report to be drafted and printed, and the first figures were issued on this new form for the month of July, 1916. In natural sequence, and by distinct classifications, the new report shows the tonnage produced by members, the amount consumed at their own mills, the tonnage shipped by members and also by importers during the same period, the stocks on hand at members' mills, as well as the imported stocks on dock; and a tabulation of the imports received from European countries that month.

Free Storage Case

The Free Storage Case was successfully prosecuted and a favorable decision secured from the Interstate Commerce Commission. The charges that the railroad companies now propose to levy on importations arriving after March 5 are equivalent to 40c. per ton the first month and 30c. per ton for each additional month thereafter, provided such charges are approved by the Commission. The railroad companies, it is understood, propose to grant 15 days' free storage time. Pulp now on dock to be held exempt from storage charges up to March 20.

Better Classification of Imports

Arrangements have been made during the past year with the Bureau of Foreign and Domestic Commerce to improve the classifications shown in the official monthly import statements of chemical pulp. The new classifications were adopted in the effort to differentiate between the imports of sulphites and sulphates, in bleached as well as unbleached grades, and the writer has already detected several errors in the monthly import statement for October, issued by the Department, which were due to erroneous entries made at the different ports. These mistakes they reluctantly admitted and corrected.

Increased Membership

Eight new members have been secured during the past year, representing an approximate daily output of more than 800 tons of bleached and unbleached sulphite, but of which only about 275 tons will be marketed.

General Outlook

Various views are expressed as to what the year 1917 holds in store for the world's business. Peace is by no means in sight, yet there is a strong tendency in all lines of trade and industry to shape things in preparation for peace. The opinion is gaining ground that, after the war, the commercial readjustment will not be so disturbing as many have expected. That there will be a readjustment, a shrinkage in commodity values, and a realignment of labor and capital throughout the entire world is inevitable. How drastic this will be no one can tell, nor exactly what effect it will have upon conditions; hence an element of caution has entered the situation today and this element is gradually becoming more pronounced. In view of the latest developments concerning the European conflict, with Germany evidently determined to carry on her submarine campaign even more ruthlessly than before, a policy that is generally construed as tantamount to a declaration of war against the United States and other neutral nations, it must be conceded that it is beyond the vision of even the most daring prognosticator to forecast what the effect upon values of chemical pulp or other commodities will be. Therefore, it seems the part of wisdom to urge upon members the utmost caution and the adoption of a conservative attitude in the making of commitments for the future. It should also be borne in mind that the marketable supply of pulp wood may prove to be a very uncertain factor during the coming months, both in the United States and Canada, and the present serious shortage of coal is already giving manufacturers in every industry something to think about.

Members should also give consideration to the fact that the Royal Swedish Commission, which has been sojourning in London for several months in the attempt to arrive at some definite understanding with Great Britain whereby the embargo on exports of chemical pulp to England might be lifted and such shipments permitted to English consumers, as a quid pro quo in exchange for

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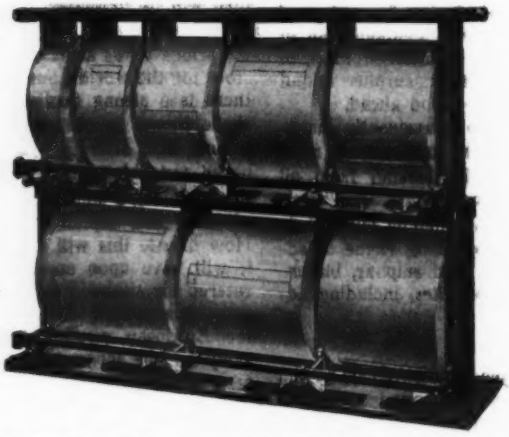

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various commodities that Sweden requires, has been unsuccessful in its negotiations. This means that the Swedish embargo on exports of chemical pulp to Great Britain will be continued. It is, therefore, reasonable to assume that English consumers must continue to depend upon Norwegian and Canadian producers to supply their needs. Ordinarily, this would result in the marketing of such unsold foreign stock in the United States and elsewhere, but the adoption of a ruthless submarine warfare by Germany would interfere with shipments from Sweden to the United States and from Norway to England, so that the only available source of supply left to either country would be Canada. What effect such a situation would have on values each manufacturer, must, of course, determine for himself.

Report of Executive Committee

E. W. Kiefer, chairman of the Executive Committee of the Pulp Manufacturers' Association, submitted the following report:

The prophecy made at the beginning of the war that the Domestic Pulp Manufacturers would be able to supply this market with all the pulp they wanted has been fulfilled.

The domestic manufacturers are today shipping 15,000 tons per month of unbleached sulphite against 9,000 tons per month before the war. Inasmuch as the total importations from Germany and Austria combined only amounted to 5,200 tons per month of unbleached chemical pulp, it will be readily seen that an increase amounting to 6,000 tons per month in domestic shipments more than offset our loss in importations through the war.

It is true that there has been an increased demand for pulp, due to a brisk market for paper of all kinds, and as yet there has been no over-production of pulp, such as we have been suffering under for the last ten years. However, I wish to point out the fact that about thirty sulphite projects either "New or enlargements" are reported and half as many sulphate mills are projected, having aggregate production of 1,400 tons of sulphite and 600 tons of sulphate daily, or 50,000 tons per month, mostly unbleached pulp, which is an increase of 200 per cent. over present domestic shipping capacity.

At the rate these new mills are being built and the old ones are being enlarged, conditions in this industry are paralleling the period commencing in 1904 when the great boom in Scandinavian mills took place, so that imports from Norway and Sweden jumped from 5,000 tons of unbleached pulp to 12,500 tons per month between 1907 and 1912, or an addition of 7,500 tons per month, amounting to 50 per cent. of what the domestic producers were marketing at that time. It is scarcely necessary to allude to the ruin that followed; of the Canadian pulp mills only one survived and of the American scarcely one-half dozen, the rest being either bankrupt or absorbed by paper mills at their own figure.

I suppose you are all aware of this great expansion that is going on in this industry and realize the danger of it. It seems a pity that among the bewildering mass of laws and prohibitions which are yearly laid upon us, that our law givers, in their wisdom, have not seen fit to pass a law prohibiting this unlicensed expansion when all history; in fact, our own experience within so short a period as ten years ago, has taught us that 100 per cent. increase in any one year must be followed by a corresponding contraction, with the inevitable result of the closing of most of the new mills and the loss of profit to all the rest. We might even wish that the President, in extending the Monore Doctrine to our external affairs, might also apply its principles to our internal affairs, and take this industry under its protecting wing to prevent it from being raided by those whose imagination of profits is usually larger than their experience in obtaining them.

MEETING OF WRITING PAPER MEN

The Writing Paper Manufacturers' Association held its meeting Wednesday morning at 10 o'clock. The discussion of business conditions proved so long that an adjourned meeting was held in the afternoon. The Sulphite Bond Division met at four o'clock Wednesday afternoon.

The following officers were elected by the association for the coming year: President, James G. Taylor, of the Taylor-Logan Company, papermakers; first vice-president, Franklin Weston, Byron-Weston Company; second vice-president, Norman Wilson, Hammermill Paper Company. Members of the Executive Committee: Thomas Becket, Becket Paper Company; Albert Gilbert, Gilbert Paper Company; R. F. McElwain, Crocker-McElwain Company; F. R. Ayer, Eastern Manufacturing Company.

The Writing Paper Manufacturers took official action in endorsing a plan now being promoted by the United Typothetae and Franklin Clubs of America to raise the plane of the American printing trade. This plan "for the advancement of the interests of paper, machinery and supply manufacturers and jobbers, the printing industry and the related crafts," contemplates a three year campaign, to be conducted from headquarters in Chicago. A systematic effort will be made by means of field secretaries to educate printers throughout the country in business methods. The Standard Cost-Finding System will be installed by the Typothetae in all printing houses, a standard scale of prices will be established and the printers' salesmen will be educated in proper selling methods. It is expected that the volume of printing business will be greatly increased as a result of such a campaign.

A sum of over a million dollars is being raised to finance the campaign of which three-quarters will be supplied by the printing trade and the balance by allied industries.

TISSUE PAPER MANUFACTURERS

The annual meeting of the Tissue Paper Manufacturers' Association was held at 10 o'clock Tuesday morning in the East Room. The following officers were re-elected for the coming year: President, Frank L. Stevens, Stevens & Thompson, North Hoosick, N. Y.; secretary, Emmett H. Naylor. The Converters' Division of the association met Tuesday afternoon at 2:30.

The meetings were followed by the usual annual banquet, which was held at the Hotel McAlpin Tuesday evening. President Stevens acted as toastmaster. The speakers on the program were Arthur C. Hastings, president of the American Writing Paper Company, "The Business Outlook"; Ernst B. Filsinger, "Exporting to South America," and Judge Charles F. Moore, "Dollars and Sense."

TRAFFIC ADVISORY BOARD

An informal meeting of paper men interested in the question of traffic rates and regulation was held Tuesday morning. Owing to the absence of some of those most interested, no definite steps were taken at the time toward a permanent organization. A committee was appointed, however, to make a report at some later time. This committee consists of Judge Charles F. Moore, secretary of the Bureau of Statistics of the Book Paper Manufacturers, and J. E. Campbell, of the Dexter Sulphite Pulp & Paper Company.

GLAZED AND FANCY PAPERS

The meeting of the Glazed and Fancy Paper Manufacturers' Association took place Tuesday afternoon. The officers of the past year were all re-elected for another term. They are W. H. Shuart, of the Springfield Glazed Paper Company, president; Felix Pagenstecher, vice-president; W. L. Carter, secretary; G. Frank Merriam, treasurer.

COVER PAPER MEN ELECT OFFICERS

The Cover Paper Manufacturers' Association met on Thursday morning. The officers elected to serve for 1917 were as follows: Willis H. Howes, of Knowelton Bros., president; C. S. Boyd, of the the C. S. Boyd Company, vice-president; E. H. Naylor, secretary-treasurer.

Fred. M. Temple, Prest. Chas. D. Thompson, Treas.

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WRAPPING PAPER MEN MEET

The Wrapping Paper Manufacturers' Association held a meeting Wednesday afternoon at two o'clock, which was attended by some 50 men representing 35 manufacturers. The following executive committee was elected: George W. Sisson, Jr., Racquette River Paper Company; Henry W. Stotes, York Paper Company; Lawrence E. Nash, Nekoosa-Edwards Paper Company; W. L. Davis, Dells Paper and Pulp Company. H. H. Bishop was re-elected in the capacity of secretary, and A. J. Stewartson as assistant secretary.

GLASSINE MEN MEET

Several manufacturers of glassine and greaseproof papers met on Monday afternoon, but because of the absence of some important makers of those lines decided to take no immediate steps to organize.

BINDER BOARD MAKERS MEET

The Binder Board Manufacturers Association met Thursday morning. The following officers were elected: President, J. W. Purtell; vice-president, H. H. Dugalls; secretary-treasurer, A. B. Goodrich, executive committee, J. W. Purtell, H. H. Dugalls, R. W. Post.

GUMMED PAPER MANUFACTURERS ORGANIZE

The Gummed Paper Manufacturers' Association met on Tuesday afternoon to perfect an organization, and again on Wednesday afternoon. They elected Winthrop Carter, president; John Ryan, of the Liberty Paper Company, vice-president, and A. D. Naylor, secretary.

The History of Paper Making in the U. S., in book form, is now out.

LATEST EXTENSION OF THE CROWN WILLAMETTE PAPER CO.

The accompanying illustration represents Mill "D," which is the latest extension of the Crown Willamette Paper Company's plant at Oregon City. It is located near the lower end of the canal and locks, which enable steamers to pass around the 42-foot falls of the Willamette River, from which ample water power is secured for the operation of pulp grinders and other paper mill machinery.

The main building is of ample size, giving plenty of room for the two large Fourdrinier machines, which run continuously on news print. It is an absolutely modern reinforced concrete structure, with every modern appliance for efficient operation. The engines and driving machinery for the two big Fourdrinier machines are installed in the basement, leaving the ground floor clear for turning out paper. There are one 156-ton and one 150-ton, steam-driven Pusey & Jones paper machines of the latest type. This building is not equipped with a full complement of auxiliary machinery, as pulp is piped to the mill from another part of the plant, the pulp wood grinders being located about one-eighth of a mile from Mill "D."

The Crown Willamette Paper Company is by far the largest pulp and paper manufacturing concern on the Pacific Coast, and its various plants, in the States of Oregon, Washington and California, have been operating up to capacity during the past year.

The main office of the company is located in the Alaska Commercial Building, San Francisco. William Pierce Johnson is president of the company and Louis Bloch is vice-president and general manager. The larger mills of the system are located at Oregon City, Ore., and Camas, Wash. Plants for the production of wrapping and tissue papers are maintained at Lebanon, Ore., and Floriston, Cal. The last-named is a modern plant, which is kept up in a state of high efficiency and turns out a good portion of the fruit paper used by the growers of citrus and deciduous fruits in California.

MILL D. OF THE CROWN WILLAMETTE PAPER CO., OREGON CITY.

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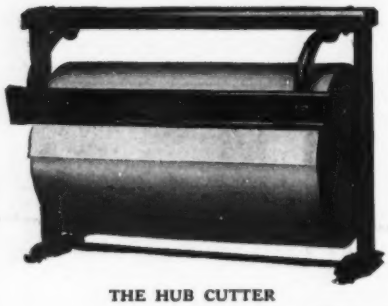

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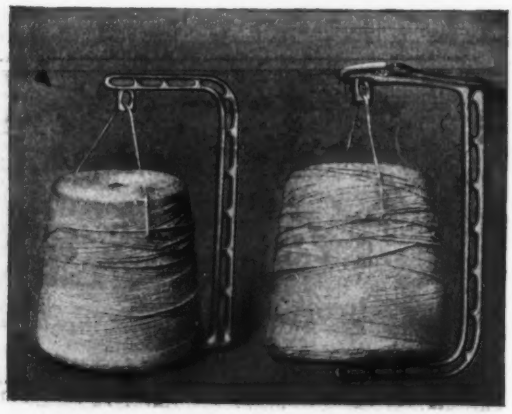

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JOBBERS *in* ANNUAL CONVENTION

Thomas F. Smith Is Re-elected President of the National Paper Trade Association

Coarse Paper Division of the Organization Holds Its Meeting Tuesday Morning at the Waldorf—This Is Followed by Meeting of the Fine Paper Division and Later by Meeting of the General Association—Work of the Year Is Reviewed and Noted Men in the Trade Express Their Views on Various Subjects.

The annual convention of the Coarse Paper Division of the National Paper Trade Association was called to order by H. E. Platt.

The Chairman: The meeting will please come to order. We are, in the usual New York style, only half an hour late. I think we are rather fortunate.

All association work falls naturally into two classes—external and internal. By external we mean that line of work which has to do with the relation of manufacturer and jobber, and the endeavor should be to get a closer co-operation between the two. Each admits that he needs the other and each is in the ordinary course of business the other's best friend. In normal times much can be done to bring about that harmony so essential to the best success of both, but unfortunately the abnormal conditions existing during the past 12 to 18 months have made it difficult to make much headway in this line of work.

The work of our association during the past year has been largely internal; that is, we have endeavored to strengthen and perfect our organization, and right here is a large field and one that will amply repay our efforts, not only from the good we may receive ourselves from closer co-operation.

In other words, your officers and committees have not been idle. A number of meetings have been held during the year at which methods were discussed and plans put into effect that will tend to strengthening and perfecting the organization of the Coarse Paper Division. Gentlemen, we need a strong, active association—one that will command the attention of the manufacturer if we hope to cope successfully with the members of American Pulp and Paper Association. We appeal to all of our members for a more cordial support—for a more ready response to requests for information and statistics. If we are to make any headway we must have an increasing willingness to subordinate our individual preferences to the interest of the common good. Much has been done through trade customs to eliminate such deceptive practices as short count, skimped sizes, etc., and business ideals are on a higher plane. We are and we should be bigger merchants today—too big—too broad to look upon our neighbor as an enemy simply because he has selected the same line of business as that in which we are engaged. We must get closer together in mutual helpfulness—we must relegate our differences into the back ground and pull together as a unit, and what our association needs more than anything else is a still closer co-operation with, and a still more unselfish interest in its work. In other words, team work.

You will note in the secretary's report more in detail what has been accomplished during the past year. (Applause.)

The next item on the programme is the report of the secretary, Mr. William C. Ridgway.

Mr. William C. Ridgway: This meeting marks the end of the first year of the complete separation of the Coarse Paper and the Fine Paper Divisions of this association. Prior to the last annual meeting the Coarse Paper members had been holding separate meetings, but last year the by-laws were changed so that the Coarse Paper Division had exactly the same machinery to work with as was supplied to the Fine Paper members.

I believe that I am safe in saying that this year has proven the wisdom of such separation and the furnishing of the same organization to both divisions.

During the year your executive committee has held two meetings, both in the City of New York. The greatest obstacle to real accomplishment during the past year has been the general condition of the market. It has been primarily a sellers' market and the buyer, because of the difficulty in obtaining goods necessary for the conducting of his business, has been compelled to submit to the exactions of the seller.

Some of these exactions have been reasonable and in many instances unreasonable from the standpoint of the jobber. There can be no doubt that any of these exactions which have proven unreasonable can be modified at such time when conditions change and the manufacturer is looking for business, and until that time the jobber is placed in a position of being able to do nothing but protest.

At the October meeting of the Board of Directors, the Middle States Wrapping Paper Association was elected to membership. This association covers the territory of the Middle States and comprises in its membership 52 houses, 17 of which are already members of the Central States Paper Dealers' Association. The total individual membership of the Constituent Associations is 286 without duplications of any kind. Of this number there are enrolled in the Coarse Paper Division 183, and in the Fine Paper Division a total of 189, which shows that in actual membership the two divisions are now practically equal as far as numbers are concerned.

The topic uppermost in my mind at this time has to do solely with yourselves. I am firmly convinced that the Paper Jobbing industry and especially the Coarse Paper branch can be improved wonderfully by the adoption of a standard uniform system of cost accounting and its installation by every member. My only regret in presenting this subject to you is that I have not the necessary qualifications to put before you the argument which will be absolutely convincing. There can be no doubt that the paper jobbing industry is behind the times in this respect. Practically every other industry of equal importance has a uniform cost system which is being generally used. The average paper jobbing house has a bookkeeping system, but it is a relic of more than ten

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Columbus, O	Arcade Bldg.	Richmond, Va	1218 Mutual Bldg.
Dayton, O	3d St. Arcade Bldg.	Washington, D. C	Munsey Bldg.
Indianapolis, Ind	Board of Trade Bldg.	Providence, R. I	86 Weybosset St.
Louisville, Ky.	Paul Jones Bldg.		

years ago and gives no real information as to the costs of doing business, etc., which is possible along the modern lines.

When I was in Washington in December, I had a talk with one of the examiners of the Federal Trade Commission who made the astonishing statement that he had never seen such rotten accounting as that practised by the paper jobber. He told me he had had quite an extensive experience with the accounting system in various lines of business, that he had examined the books of more than twenty paper jobbing concerns, and that only two had systems which were anywhere near modern. That the books of one house had not been in balance for over a year, that in the majority of them it would take at least a week's work to ascertain how much stock they had on hand, and if our association was worth anything it would see that this was done before anything else.

I must admit of feeling a little ashamed at these statements and I want to assure you that if it is within my power to bring about this reform, I propose to do it.

The past year has been one when the paper dealer was bound to make good profits regardless of the kinds of accounting he employed, but such conditions are evenutally coming to an end. When normal conditions again prevail, the dealer who will be most successful will be he who has a most complete knowledge of his business and a modern accounting system is the only method for giving this knowledge. All of you have money in the bank at this minute which could be expended in no better way than by installing at once a system of accounting which would give you this knowledge. It would mean a little additional expense, it is true, but it would be well expended. If, before the break in prices comes, and it is bound to come, sooner or later, every member here would install a modern accounting system, it would do more than any other one thing to steady prices at that time.

In December I addressed letters to all members of the Coarse Paper Division outlining a plan for gathering statistics as to stocks on hand, on order, etc., and asked for individual opinions as to whether these facts could be given and their criticism of the general plan. Nearly every member who replied had no criticism to offer of the plan itself, but at least 80 per cent. expressed the opinion that it would be impossible for them to give accurate information from month to month without an excessive amount of work.

The perpetual inventory which is being successfully operated in a number of houses would give this information reasonably and accurately and without undue extra work. It probably would be necessary to make some slight changes in the present system, but I am informed that this inventory would produce the results desired. If our members themselves cannot work out these changes, an expert should be employed by the association.

It is my belief that most of the members were astonished at the size of their stocks at the close of last year, but they would not have been had they been possessed of a perpetual inventory and had made use of it. It would disclose many interesting facts, such as the live and dead items of stock. It is to be hoped that within the next twelve months, every member would have installed a perpetual inventory. The uniform accounting system should go in at the same time and I would remind those present that a start in this direction was made three years ago. The system devised by Mr. Lamb, a certified public accountant of Cincinnati, was recommended to the members of the association at that time. Since then Mr. Lamb has installed a system in a number of houses, none of which have other than praise for it. Mr. Lamb is still in business and subject to retainer from our members for the purpose of starting his system. This system has been working for from four years to one year in a number of the houses in the West and it has produced results which should be an incentive to the members present to take advantage of the experiences of these houses. I know that any of them would be more than willing to give information as to the working of the system to any member desiring it. (Applause.)

Gentlemen, I would like to emphasize what has been said by the secretary in his report. It will pay all of you who have not already done so to go into this matter of perpetual inventory and cost accounting question as installed by Mr. Lamb. Our concern has used it for several years, and we find it very useful. There may be some advantage in not having a good bookkeeping system at the present time. I would like to ask those who have a system at this time to tell us if they are successful in concealing any of their assets from the income tax collector by their method of bookkeeping.

The Chairman: I will ask Mr. Lyter to give us a report of the executive board.

Mr. Curtis E. Lyter: The executive committee unanimously recommended, following the meeting of the representatives of the Tissue Paper Manufacturers' Association, that each organization of the National Paper Trade Association insist to its individual members that they request mills to use labels on all shipments of tissue.

The Chairman: That was a conference—if I may supplement this report—with the Tissue Paper Manufacturers, which was held with your executive committee yesterday. I suppose you are all familiar with those tissue labels, and I believe that subject is going to be covered by the chairman of the tissue paper committee.

Your executive board, in addition, had a conference with the manila manufacturers—wrapping paper manufacturers—this morning, and it was the sense of opinion on both sides that a permanent conference committee be appointed from both the American Pulp and Paper Association and from our coarse paper division, to hold stated meetings during the year. I would rather defer any possible discussion on that point until after we have heard the talk, which Frank L. Moore, of Watertown, N. Y., is going to give us at 3 o'clock. Mr. Moore has very kindly consented to talk to us on the topic, "How Can the Jobber and the Manufacturer Co-operate More Closely, from a Manufacturer's Point of View." I think we have got to have both points of view before we can determine upon any common ground, which will bring us together. We have a report from the wrapping paper committee, Mr. Ebbetts, chairman.

Mr. William E. Ebbetts: We took up five items this morning, the first of which was the differential on sheets over rolls, and our committee would like to have that time, as well as the rest of them, put before the manufacturers. They think that 15 cents additional over 9-inch diameter rolls should carry on the Jumbo rolls a differential down from the 9-inch rolls.

Then the discount question was talked over, and we thought that we should still maintain our arguments with the manufacturers for the 3 per cent. basis, rather than 2, which exists with most manufacturers today on our wrapping paper.

Direct selling was also brought up. We think we should continue our fight and action on that. We thought we would get more recognition at this time than in normal times, because of the mills being so busy they would not bother the jobbers quite so much now with direct sales as before.

We wish to ask the manufacturers to eliminate brokerage selling entirely.

The Chairman: Without any desire to stifle any discussion on that report, it would seem to me these matters are vital, and it would be in order to refer them to this conference committee if it should be appointed, because I believe the conference committee in its various discussions with the manufacturers' committee can do some very effective work along these lines, and the chair would be very glad to entertain a motion that these items be referred to such committee.

Mr. R. P. Andrews (Washington, D. C.): Mr. Chairman, I would like to ask the chairman of the wrapping paper committee if his committee has considered a concerted action upon the report of the wrapping paper dealers of the United States to offset

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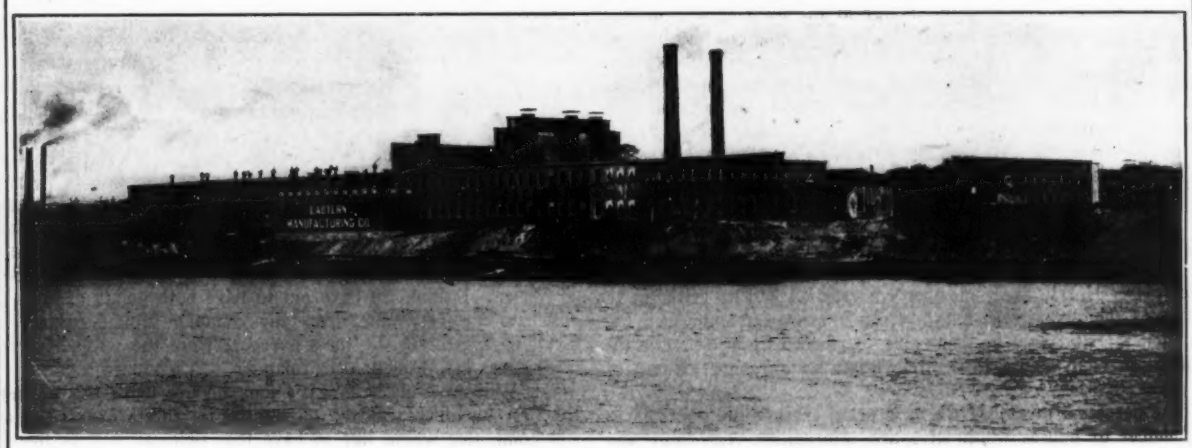

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this campaign that has been started and is now being carried on, I believe, throughout the United States by the American Newspaper Publishers' Association to effect the curtailment of the use of wrapping paper in the United States. We all know, I believe, without going into details regarding this campaign—I believe you are all perfectly familiar with it—which has been started and has been carried on in every city in the United States. It has never been denied by the American Newspaper Publishers' Association that they started it. The allegation was made in the paper mills some months ago or weeks ago. I have not seen it denied anywhere. I know that in our own city a campaign was started by the leading paper of the city, the *Evening Star,* to curtail the use of wrapping paper. One or two of our dealers there were very much exercised about it, and called me up. They proposed that we join together and take a page in each of the other three daily papers to offset by argument this campaign the *Star* had started. I told them I did not think that was the proper way to fight that campaign. The *Star* is a very powerful factor in the city of Washington. It probably goes into twice as many homes as any paper in the city of Washington, and stands very high in every way. One of our dealers had been down to see the *Star* and tried by arguments to get them to cease this campaign, and it did not have much effect. He rather appealed to me as being the largest advertiser in the papers in Washington to prevail upon the *Star* to cease. I did not think that was the proper way to do it. I said: "When you have got a campaign started by a daily newspaper, you must start something else that will take the minds of the people off that campaign. The ordinary campaign started by any daily newspaper will be forgotten in the course of 10 days if something else is started." He said: "What do you propose." I said: "We have got the ammunition just at our hands. I have got a report from the United States Department of Commerce, which states that the cost of delivery of small parcels by the stores of the United States is 8 per cent. This is campaign enough to start on. Now let us start on this campaign. We can show by using the figures of the United States Department of Commerce that by people taking home their small parcels, instead of having them delivered by department stores and small stores, that while the ultimate consumer saves one-tenth of one cent they will probably save five cents on every purchase under $1 by taking the parcel home." They said: "Will the *Star* take it up." I said: "I don't think they will, but the *Evening Times* is always willing to take up anything in opposition to the *Star.*" You can always find opposition newspapers in a city that is large enough to have two papers. If one paper takes up one question to make capital out of it, the other paper is always willing to take up the greatest question to make more capital. Se we started on that proposition, and in less than one week I can say the *Star campaign* was entirely forgotten. They are not taking the small parcels home in Washington yet. A very large storeheeper, when Mrs. Andrews happened to go in to make a purchase, said he presumed she wanted to take it home, and she was game and said: "Yes, I do." I think that was the only case in Washington where they suggested they take parcels home. But the campaign for the restricted use of wrapping paper disappeared in a very short time, and was forgotten in the city of Washington, and I believe that of the gentlemen interested in this question in other cities, if they have been affected by it (and they will be more or less), will follow the campaign we did there they will find it will work very successfully. (Applause.)

Mr. F. A. O'Neill: Our committee held a meeting this morning, and the general opinion seemed to be that the tissue market was the worst of all in the wrapping paper line. We have a general complaint about skimped sizes. Here in New York and some other sections of the country we are bothered a good deal by sizes like 19x28 and 23x35. We have some of it in Philadelphia, but not a great deal. What we do need in Philadelphia comes principally from New York. We personally do not stock it—our firm does not.

The matter of label was taken up, about the Tissue Manufacturers' Association putting labels on the wrapped reams of wrapping paper and also on the bundles. But few of the members of this committee felt that these labels were being put on bundles. I know we have never received a shipment with these labels on, and the men seemed to think that it was not a good thing to have these labels put on, because the fact that these labels were numbered, designating the mill that it came from, gave our competitors an unfair advantage. I would like to have that discussed later on when I get through this report.

Another very serious complaint is the fact that the jobbers all over the country are selling tissue paper at prices below what the manufacturers are asking. That condition exists in Philadelphia.

There is another thing that some of the men spoke about, and that is the fact that there were a number of brokers, principally in New York, that had been sending out lists in these odd sizes—19x28 and 23x35, and also regular sizes, and they have been endeavoring to take business away from their home market, and probably getting a price in their own city, but when they go away from their own city with these lots it causes quite a lot of trouble and annoyance to the jobber in the other sections. The men would like to have that discussed, the fact that brokers are doing that.

Mr. Frank L. Moore: Mr. President and gentlemen—I thought best in talking to you gentlemen here this afternoon that I confine myself to some notes, and so if you will pardon me I will read you what I have to say.

When I received the very kind invitation of your committee through your secretary, Mr. Ridgway, I declined as gracefully as I could the honor of speaking to you. It was with misgivings that I finally accepted the invitation, misgivings inasmuch as I had been relieved of the duties of office I had hoped that I would not be asked to speak anywhere, and furthermore, the subject which you have assigned to me is in a way a very difficult one to treat upon impartially.

I wish to say at the outset that whatever I may say in the way of suggestion or criticism is exactly as I view the subject as an individual. If, perchance, I say something to which some of you may take exception, please bear in mind that the criticism will be no more severe or perhaps as much so as it would be if I were talking about some manufacturers.

Some might answer the question briefly and cold bloodedly in saying that you should accept the prices, terms, conditions as asked by a manufacturer without any argument, that this would be the easiest and most satisfactory kind of co-operation.

The jobber of paper is in somewhat a different position than the distributors of many other kinds of manufactured articles, inasmuch as he is the medium that the manufacturer uses for the distribution of his product to the ultimate consumer. I look upon the jobber as just as much of a necessary adjunct to my business of manufacturing wrapping paper as it is for me to have a supply of material on hand to be used in the manufacturing of paper. The only difference between the many things that we have to buy and what you are buying is the fact that what we buy and what you are buying is the fact that what we buy is used to convert raw materials into a finished product. You are buying this finished product to distribute to the ultimate consumer.

In these days of investigating the high cost of living and of almost everything else, the distributor seems to have a great deal of attention focused upon him, which to my mind means that he should use his influence in two directions; first, to see that in the distributing of paper to the consumer it is on an equitable basis; and second, to so conduct your purchase as to influence the manufacturer to maintain a fairly steady market year after year. In other words have business so conducted that both you and the

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manufacturer, because opportunity presents itself, will not make in one year profits which should be distributed over two or three years. You may say to me when this can be done that the millenium will have been reached, but I say to you this can be done when government will give to associations the privilege of discussing conditions and acting on what they believe in their best judgment to be for the benefit of the people as a whole without subjecting themselves to fines and imprisonment.

It is human nature the world over for a buyer to obtain as low a price as it is within his power to obtain from a seller.

We know that all sorts of arguments are used both legitimately and illegitimately to influence a seller to reduce his price. I have had deliberate attempts made upon myself during my years of selling paper to misrepresent conditions and prices quoted by others. With possibly one or two exceptions I have been charitable enough to believe that the man doing this believed that he was perfectly honest in using the tactics that he did, and would go home at night with a perfectly clear conscience that he had performed the trust imposed in him by his employers in a perfectly honest way. These tactics I have seen used by men who would scorn the idea that they were doing anything dishonest, and whose every act and reputation through life had been one of honesty and uprightness.

When a manufacturer learns of these attempts at misrepresentation he at once becomes suspicious of all of the transactions of the house of which this buyer is an employee. The seller may then deliberately attempt to do something, as one says, to "get even," with the result that the co-operation which should exist between a jobber and a manufacturer has received a bat in the eye.

In other words, I believe that when a jobber has had a certain grade of paper from any one manufacturer over a length of time and the order is up for renewal, if the manufacturer names what is his market price for that particular grade of paper, and if he sells it it must be about the market price for an equal grade which might be manufactured by anyone else, the jobber, instead of asking for other quotations and trying to misrepresent the price which I have given him in order to obtain a lower price, should accept the price from the mill and place his tonnage with that mill.

I do not mean it exactly as I have written it there. When I read it over I saw that might be misinterpreted. I mean the jobber should obtain prices wherever he wants to, but if there is only a little difference between the prices he obtains and this particular order has been going through that one channel to that ultimate consumer for years, that order should still remain with the mill that has had it for some length of time.

I had an experience of this kind once myself in which I had refused to lower my price and the jobber had taken the order and guaranteed to deliver our paper. He was obliged to buy elsewhere and he did so with the result that the consumer found he was not getting the paper which he had had for several years, and finally it became known that it was being supplied by another mill. This kind of treatment does not beget confidence.

Practices of this kind as carried on by some jobbers a few years ago caused serious consideration by a few mills making similar grades of paper if it would not be wise for them to carry a large stock of goods in large distributing centers, and devise a plan where these goods would be sold direct to the consumer; deliveries, etc., to be worked out on some equitable basis, thus doing away with the medium of the jobber entirely. Demand for paper came along and with it gradual advances in the prices until losses were turned into profits and nothing more has been heard of this idea. I believe, however, this is something if we ever return to the old conditions and ways and methods of doing business that will be revived and seriously considered.

During the years previous to the present prosperity all kinds of devices and means were used to obtain business with the result that formerly there was some semblance of standard sizes and weights and grades of wrapping papers. During the dull years of business all of this was lost sight of with the result that manufacturers were asked to quote upon special sizes, weights, and grades varying only a little from standard, but all with the idea that it could be bought a little cheaper than a standard grade could be bought, or that if these conditions were complied with the consumer would have a more economical paper bill even though he may have paid a little more in some cases.

All of these things tended to the increased cost of manufacturing and finishing paper. The manufacturer accepted these conditions as imposed upon him, in many cases without any additional compensation, because he apparently needed the tonnage to keep his machines running. It was something new and hardly a manufacturer had a cost system that enabled him to tell just what each individual order or each individual grade and weight of paper cost him. What with lowering prices and diminishing profits until in many cases losses were incurred, the manufacturer has gradually established a cost system in his mill and he begins to realize how much more it costs to produce special grades.

You as distributors should encourage your customers to use standard grades and weights and colors as far as possible. We know now and you know that additional prices must be asked for anything special and in doing it the profit of the manufacturer is not increased.

It was only a short time ago that I received an order from a very large jobbing house, for the sake of argument, say it was for 30-lb. paper. A few days later I received a letter asking us to mark these bundles 25 lb. basis. I could not believe but that the jobber had made a mistake and wished to have the paper not only marked 25 lb. basis, but run on 25 lb. basis and pay the additional price. I took the matter up with him and he asked us to make it on a 25 lb. basis, but this practice of manufacturing one weight of paper and marking it another used to be quite common. It is up to you through your association to absolutely discourage anything of this kind.

The wrapping paper manufacturers have seen fit during the last two or three years to make changes in their trade customs. There has been a great deal of opposition to many of these changes. Our cost systems have shown us what the additional costs have been. For instance, to finish sheets as against rolls, small sizes as against large sizes, special grades as against standard grades, and we have asked you to pay us this cost and you in turn should exact this increased cost from your customer.

In your business if you should find the cost of distributing some particular grade or quality or kind of paper is larger per ton than distributing some other grade you would naturally expect to add this extra cost to your price. That is what we have done and it should be accepted in the spirit in which it is made.

The change of discount occasioned a great deal of discontent and criticism. My own belief is that this should have gone even farther than it did go. A discount should be considered as a premium for paying cash and not to be considered as part of the price. 2 per cent. 10 days or 30 days net in my belief would be more in line and in keeping with the discounts of practically everything that is sold today. I know that within the last ten years practically everything that we have to buy has been changed from a discount allowed in 30 days to net 30 days. It is a condition which has confronted us and we have had to meet it and still the wheels keep turning just the same.

Many of these differences appear to each individual about as the state of mind in which he happens to be in when they are brought to his attention. I have said at meetings of manufacturers and have been cirticised for advocating it, but I am willing to say it again, that I believe the most satisfactory way to arrive at changes in trade customs, particularly where the manufacturer is dealing with the medium through which his distribution is made, that they should come together and discuss these changes and let it be done

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by men broad enough to view things beyond their own selfish ideas.

Another thing that I believe in which the manufacturer has done, and which so far as I know the jobber has accepted as being fair and equitable, is the open price method of selling one's goods. With the present attitude of Government and the idea of the public, I am glad to have seen this method so readily adopted.

Another thing which the jobber can do which I believe to be of great mutual benefit is to do away with speculative buying. You can help to steady the market by purchasing your normal requirements in a normal way. The mill has a better idea of the condition of business and it will tend to more regular prices and to steady conditions. There are those of you who do speculative buying, bringing about unsettled injury to your fellow jobber as you are to the manufacturer. A knowledge of stocks of papers of various grades that are on hand by your associates would do a great deal towards a more even distribution.

We are hearing a great deal today about co-operation and efficiency. Every little while someone in this country coins some new word or phrase that catches the people and travels like wild fire. Co-operation and efficiency should have taken hold of our people ages ago, and we should now be reaping the benefits accruing from the right kind of association work.

We, referring to all kinds of business, have not co-operated as closely as the industries of Germany have. We look upon their system as being perfect. If we had studied efficiency and co-operation as carefully and as long as they have we might consider the results being obtained by them today as crude, but, nevertheless, they are so far beyond any thing that we are allowed to do here in this country under our present laws, and the results are so evident, that we should use our influence with our Government to allow closer association and exchanging of ideas to the end that business may be more stable and profits more sure.

We, as manufacturers, are trying to be as efficient as we can. You, as our distributors, are trying to be as efficient as you can, and I use this term because I look upon you as our medium of distribution. If the things which I have touched upon such as standardizing of sizes and grades, trade customs, speculative buying, etc., will tend to make you more efficient it also tends to make us more efficient.

I should like to have a jobber prepare a paper on how a manufacturer can co-operate with a jobber from a jobber's standpoint. In my own mind he would find more to criticise. His criticism might be severe and his suggestions of a great deal more value than anything I have said to you.

There is another phase of this subject which I believe is detrimental to a safe, staple, uniform market, and that is the encouragement given many brokers whose only expense of doing business is perhaps items of postage and desk room somewhere as compared with the jobber who carries large stocks of paper. There should be a distinction made by the mills, or perhaps I should say the jobber who carries stocks of paper should receive a certain amount of protection from the mill and shown every consideration that can be legitimately given him.

I look upon the man with an office in his vest pocket as being able at times to pick up the cream of the jobbers' business here and there and have always found some mill that was willing to accept this business.

In saying this I do not mean to say that any man is not entitled to earn his living in any legitimate way, but a manufacturer should not lose sight of the fact that in the end at times persuasive arguments may work to his own detriment.

I have already hinted at closer co-operation and I speak of this as covering all kinds of manufacturing and merchandising. We in this country are a country of individuals. Individualism is the dominant force in every industry; a new country rich in natural resources; a government of and by the people has permitted the development of the highest types of individualism.

You may say this is as it should be, and the fact that honest, legitimate effort is the incentive for anyone to obtain a position of honor and confidence has developed the highest type of individual. He has been successful in the methods he has employed. Expansion of business and competition is creating a condition which, to insure a profitable operation of any business, requires the co-operative effort of individuals.

The great war which has enveloped about three-fourths of the world has been teaching efficiency to those nations that were not efficient, and the handwriting on the wall is that co-operation points the way to success. When the war is over all of the torn and blood stained countries will have been taught, in addition to efficiency and co-operation, economy.

Are we here in this country preparing to meet those conditions which we must meet just as sure as the sun rises and sets? I do not believe we are. We are carried away with the success of today.

It was only a few days ago that one of the leading United States Senators characterized the utterances of a business man as the "braying of an ass." Without commenting in any way upon the occasion of the statements that called forth this remark, I take exception to it and say that, if a man representing the interests of a business constituency can utter words like these about it, we can say to this Senator as business men that for years we have listened to the bellowings of the bulls and the brayings of the asses of those whom we have elected to make laws for our guidance until it is time that we as business men should select business men for public office, and particularly the time has come now when we should do it. Hon. James W. Wadsworth, Jr., a United States Senator from New York, very recently said: "A business man should give heed to what is going on in the legislative bodies of the country. I see in the future, unless this heed is given, a development which will prevent the individual from carrying on his business, honest though he may be, with his own initiative and enterprise."

I do not want what I have said to be applied to all men whom we elect to office, but I want it applied to men of whatever party they may belong of the stamp of this Senator who made the remark above about business men.

We see on every hand government interference and intervention. Four-fifths of this may be right and one-fifth wrong, but the wrong should be righted. Unless we as business men take an interest in business affairs and follow the advice of Senator Wadsworth, how long will it be before there will not be any strictly private ownership of anything?

I have strayed somewhat from the subject, but the opportunity presented itself for me to repeat perhaps in a little different way what I have said on many occasions, and that is to urge the business man to take interest in public affairs and particularly in that which directly concerns him, unless he wishes to become burdened with meaningless laws and weighted down with ever increasing taxes. Government needs the trained business mind. (Applause.)

If you will pardon me a moment longer, I will say that last week I had the pleasure of attending the annual meeting of the Canadian Pulp and Paper Association, and what I am going to say to you I do not want you to take as any scare words, or anything of that kind, but just to give you an idea of the conditions as I found them in Canada. They were entirely different from what I expected, and I believe in the next six months that we are going to see conditions in our industry different and more difficult to handle than we have seen in the present time.

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There is a shortage of wood in Canada. The railroads there have not the cars to supply the mills to ship anything over on this side. There are mills on this side that, unless some miracle is performed, will be out of pulp wood within two or three weeks. One mill I know is already piling up their stock of pulp there because they cannot get cars in which to ship it. One large manufacturer said he could not ship bleached sulphite in coal cars, and that was all he could get, and with shortage of labor, and with freight cars filling every siding over there without the motive power to move them, and with passenger trains annulled so as to put the engines on freight service, the situation is very serious, and some mills may not be able to keep running either from not being able to get wood for their pulp, and it is possible that there will have to be a spirit of co-operation among you gentlemen here to go to mills that have been your regular source of supply and ask them to supply someone else with some paper so you may keep things moving.

Now I am not a pessimist, and am not saying this, as I said before, in any way of scare lines, but simply to state the conditions as I found them, and which I do not believe any of you gentlemen would realize the seriousness of unless you had been over there and seen it at first hand.

One concern over here has forty men chasing up and down the railroads trying to get cars to load pulp wood. Some of them have twenty men. And there is no price for pulp wood if a man can get cars in which to ship it. And the price of ground wood is more than double what it was ever known to be before. All of those things are not tending to any lower prices for paper. I don't want to see the manufacturers get scared and go to work and put their prices up out of sight because someone waves a red flag, and if we as manufacturers and you as jobbers can work closer together, I believe in the next six months we will be able to study conditions and get to know each other better, and when things change, as they are bound to change, that your business and our business will be conducted in a profitable way to all of us. (Applause.)

The Chairman: As long as our reports have been interrupted, with your permission we will interrupt them still further for a few minutes. Mr. E. F. Herrlinger, president of the Middle States Wrapping Paper Association, has very kindly consented to give us a talk on the educational value of association work. I think it will dovetail in very nicely with Mr. Moore's talk on co-operation. Mr. Herrlinger doesn't need any introduction to many of us. To some he may be a stranger, and I take great pleasure in introducing to you Mr. E. F. Herrlinger, president of the Middle States Wrapping Paper Association. Mr. Herrlinger. (Applause.)

Mr. E. F. Herrlinger: Mr. President and fellow members of the Coarse Paper Division: After hearing this able talk of Mr. Moore I wonder why I was selected. However, a few days ago I received a letter from our chairman, asking me to talk to you about The Educational Value of Association Work, and fortunately in this letter he stated, "Any other subject that you may select"; so I thought it might be proper under the circumstances to outline to you the work that has been accomplished by the Middle States Wrapping Paper Association in the central territory during past years.

Before entering upon this discussion, however, I wish to express to our president my appreciation for his honoring me with this invitation to address you. No doubt some of the gentlemen present can qualify as experts in organization work, whereas my personal experience along these lines is distinctly limited.

I do not claim to be either a trained or a natural-born organization-worker, but I trust you will be interested to hear just what success our subsidiary body has attained during the brief first year of its existence, as this success may be measured from an educational point of view on the one hand and from a practical point of view on the other hand.

When we use the phrase "educational point of view," we mean, as I take it, the influence that we have exerted to put ourselves in the proper attitude of mind toward the problems that confront us. When, on the other hand, we use the phrase "a practical point of view," we mean, as I interpret it, the needs and actions of our members and those with whom we come in contact.

The attitude of mind should influence the deeds and actions, and the deeds and actions often do react upon the mental attitude.

In this discussion, I shall not specifically label each separate result, but I shall treat the theoretical or educational and the practical or concrete as going hand in hand in our experience. As keen-minded business men you will readily assign each topic to its proper place without the need of any label.

Returning now to the story of our association:

Naturally, in the beginning we made some mistakes, and I was elected president.

In my case I made a friend of the bear, and I soon learned that the bear (I did not say bull) and I had many things in common with each other, just like all of us have in work of this kind, and after a year I have concluded that the results which can be obtained through organization work are almost limitless, especially when we have the hearty support of all the officers and members as we have had during our first year.

Our association was formed in about this manner. A little more than a year ago a few wholesale paper dealers were invited by one of our present members to attend a noon-day luncheon at a leading hotel in our city, and none of us seemed to know why we had received this request.

However, we accepted the invitation and after mingling together for a few moments something told us that we should know each other better and that nothing but good could come from an occasional meeting of this kind.

We seemed to have decided immediately that after all we had only one purpose in mind, namely, a desire to conduct our business along successful lines and to be considerate and fair with each other; also with our mills and customers.

We soon concluded that the merchants who are the most successful are those who operate along conservative lines and that no merchant or manufacturer who has not in mind at all times the general welfare of the business in which he is engaged can hope for a real success.

After a few such informal meetings it was evident that work of this kind, so beneficial in its influence, should not be confined to a limited locality, but should be extended and shared with other fellow merchants who, in turn, would be willing to co-operate with us.

As a result, to-day we have the Middle States Wrapping Paper Association with fifty-four membership houses in the central territory, all joined together with one purpose in view, which is gradually being attained.

Many of our members have attended all or most of the meetings we have held in the various cities during the past year, and I believe I can say positively not only that we have enjoyed these meetings from a social viewpoint, but also that the practical results have amply repaid us for the time and effort we have devoted to this work.

A short time ago it was found best to change our course and become affiliated with this larger and more powerful National Paper Trade Association, and while this action met with some friendly opposition, it was finally decided to join with this larger body in order that our united efforts might be concentrated toward only one goal.

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It was a pleasure to note the good feeling that existed during this friendly contest, and the willingness with which all of our members joined in the work of making our organization a complete success under the new plan, proving conclusively that the uppermost thought in the minds of all was the success of our organization regardless of the plan under which it was to be accomplished.

During the past year our members have probably been busier than during any year in their business careers, and still, as I have just stated, a large majority of these members have found time to attend every meeting we have held, although it is quite evident that an association of this kind is less essential at the present time than it would be under normal conditions.

I believe that the day is past when men engaged in a particular line of industry will look upon their fellow tradesmen with contempt and carry on their business contented in the false belief that all the evils that exist in their particular industry are the outcome of the unbusinesslike methods of their brother merchants and not in any measure the result of their own methods or conduct.

On the contrary we must sooner or later come to realize that we are all more or less responsible to each other for the unreasonable trades customs and conditions that prevail in our businesses, and admitting this fact, each one of us must contribute his share towards correcting these evils if we expect to change these conditions.

This needed change and improvement can only be accomplished by co-operation to the fullest extent—by meeting each other on common ground and entering into a free and open discussion regarding matters that vitally interests us.

A very successful Chicago merchant once said: "The first step toward correcting an evil is to admit its existence, and having once done this the task of correcting the evil is very simple and requires very little effort."

Our association, I can frankly say, has accomplished much along these lines.

While it is true that abnormal conditions have made it impracticable for us during the first year to bring about as many improvements as we had desired, we have at least met each other as merchants should meet, the large and small merchant alike, in the proper spirit of mutual consideration, and with the proper appreciation of the principles of right and wrong applied to everyday life and with the proper recognition of the rules of fair play.

In other words, business men can sometimes profitably borrow from the rules of true sportsmanship. And, since we recognize and rely upon the principle of fair play, we can and do secure the co-operation of the small merchant as well as the large merchant.

And it is my opinion that in organization work of this kind, the support and co-operation of the small merchant is just as essential as that of the larger one.

In fact, we can positively assert that the more general and extended the membership, the more lasting will be the benefits derived from the organization.

I can safely say that each of us who has attended the different meetings of our organization has been personally well repaid for the time thus devoted to the work aside from the general benefits we have all derived from our mere membership in the organization.

Business men generally gain a certain amount of keenness and insight from the mere personal contact with one another.

Furthermore, this personal contact serves to dispel feeling of distrust or suspicion, if any there be, and to engender and learn again what we already knew, that our competitor is not such a bad fellow after all, and that such real success as he has attained is generally based upon real merit.

You may feel inclined to criticise my statements as being entirely theoretical. I have, it is true, emphasized the theoretical and educational side of our work, but I ask you to admit that theory implies reasoning and that you do nothing worth while without having a reason.

What we do thoughtlessly is often something for which we feel sorry, and sometimes even a little ashamed. Now, the theory of such organizations as ours, the real reason for their existence, is that they teach us to think twice about our business methods, both as individuals and as a class of business men, aiming to eliminate evils that grow out of ill-feeling and that engender ill-feeling—aiming to justify the fullest confidence that may be reposed in us by our customers and by our mills and by each other—aiming to maintain a condition in business where a reputation for integrity shall always be a real asset in our entire business careers.

In this sense, our work though largely theoretical, is really constructive in the most practical sense.

Where—to use only one example—where would we be if we had no means of agreeing upon a standard classification of goods?

To cite another instance of the value of organized effort, where would the small shipper be today had not different organizations singly and jointly fought to eliminate the evils of railroad rebates, and the irregularities in bills of lading, and the lack of uniformity in freight rates?

Of course, chambers of commerce can take up such things, but frequently that is done without due attention to the interest of some particular branch of trade—such as ours.

In fact, while the modern world still believes in the saying, that competition is the life of trade, it has only resurrected that older saying just as true, that in union there is strengh.

While, as I have said, I cannot recite to you any large practical accomplishment, I can say that I am convinced that I have the approval of the entire membership in the statement that our work is really constructive, without the slightest tinge of antagonism toward our mills or our customers; and that as an association we stand ready at all times to serve our proper function in this practical world of business.

We desire to improve business conditions, and I firmly believe the mills from whom we secure our merchandise, as well as the customers to whom we sell, will gladly welcome an opportunity to assist in this task—with results that must ultimately accrue to their benefit as well as ours.

I was one of those members of the Middle States Wrapping Paper Association who at first opposed joining the National Paper Trade Association, but I am now convinced that much benefit may be derived through this co-operation, and I am sure that many of our members are firmly of the same opinion.

I will say further, that I believe that those who derive the most benefit from this kind of work are those who are willing to give, and do give freely of their time and effort in its behalf.

They benefit from the experience that they acquire, they benefit from the acquaintanceships they make, and they benefit through their more adequate appreciation of what efforts are required to create any real and lasting improvement in the business conditions pertaining to a whole branch of commerce.

Having devoted much time and effort in the work of one such association during the past year, I feel that I will be pardoned for the positiveness with which I make this statement.

My experiences throughout my business life have impressed upon my mind with increasing emphasis the thought that in this day and generation none of us can withdraw into a shell and ignore the rest of the world; but on the contrary we all know that all kinds of contact and intercourse go to make up our active lives, without which we slow down and are left behind in the procession of life.

While we must not lose our individuality, we should remember that our individuality cannot act upon things alone, but must

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also act in some way, upon other individuals; and their actions will also in some way affect us.

We may so live that people will not be able to protest to us frankly when we are wrong, or we may live in an atmosphere of approachability, giving to all men the right and opportunity to know us as we really are.

It is this spirit of approachability that is exemplified in associations such as ours; and I do not think I am arrogating to myself any special keenness of insight, or any over-refined sense of virtue, when I advocate the formation of such organizations as this, and the continuance of their efforts along all legitimate lines of co-operative endeavor. (Applause.)

The Chairman: Just a word on that tissue question. If you will recall Mr. O'Neill's report, there was some question as to the value of those labels. I think Mr. Power will be able to give us some information on that as to how this proposition was started. But there was a matter which came up at the conference between the tissue manufacturers and your executive committee yesterday in that on trade customs No. 2, with which you are all familiar, they had two standard sizes. The mills desired to include three additional sizes as standard, 10x15, 15x20, and 18x24, and to insert the word "wrapping." "The following sizes may be considered as regular for all wrapping tissue paper, 10x15, 15x20 and 18x24," with a note at the bottom of that clause: 'The above does not apply to special orders for manufacturing purposes where odd sizes are used to conform to special requirements of one particular manufacturer.'"

Your committee would recommend the adoption of this new clause from the simple fact that this makes it easier for the jobbers to do business, and does not in any way encourage the skimped sizes.

Now we would like to have some discussion on Mr. O'Neill's report. I hardly think it is necessary to explain the use of those labels. You all understand the labels are identical for all mills, that there is no method of distinguishing which mill the paper comes from, except from a small number on the label, and it has resulted—I am not speaking from personal knowledge, because we handle very little tissue, but it has resulted where it has been used in considerable benefit both to the jobber and to the manufactarer, because it means simply a standard of weights and measures. Other measures in the same line are endorsed by the Government Department of Commerce, because it standardizes the same as the standards of pound weight or a quart measure or a bushel measure, this measure standardizes the quantity. It is a measure of value and standardizes the quantity of tissue. We shall be very glad to hear from Mr. Power.

Mr. Power: I don't know that there is much more I can say. The chairman has spoken to you so minutely on the part of the committee yesterday. I was surprised there had been any opposition as to the use of the label. The label as used is a uniform label, and the only objection I have heard is that it is the means of identification of the manufacturer. Now in a way it may be, but I cannot see that it is detrimental to the interest of the jobber. Every manufacturer has a number, and the only person who has any knowledge of who the manufactuer is, is the secretary of the National Tissue Paper Manufacturers' Association. Of course, if we are buying tissue paper of some one manufacturer and it comes into our place and it is No. 19, we soon learn that No. 19 is, we will say, the Smith Paper Company, or anybody else, but as I understand from the secretary, whereas a specific manufacturer's number will be 19 this year, next year it may be 23 for all we know, so that that does not show anything or give any information to our competitors. Furthermore, I cannot see any hardship if it does, because I think any of us who have been in business for any length of time can readily identify the brands of one manufacturer from those of another. It is no more identification than when some manufacturer uses possibly two color labels, and the manufacturers are very much interested in this, and they have asked us for our co-operation. It is a guarantee that the paper contained in that bundle is the size stipulated on the label, and also that it contains the number of sheets to the ream marked on the label. So that there is no possible chance if an unscrupulous dealer should want to buy paper 23 x 35, the size Mr. O'Neill mentions, that he can do that and have the bundles labeled 24 x 36. Now it seems to me, wherein the manufacturers are willing to go to this expense to adopt this label and put it on to each ream (not on each bundle, because it can be very easily removed from the wrapper), but every package in that bundle contains one of those labels, and there are not many jobbers that can afford to take and unwrap all the packages just for the sake of taking off the label. But they have come and asked us to co-operate with them to continue the use of this label, not only as to writing to the people with whom we do business, who are members of the National Tissue Manufacturers' Association, but also to demand of all tissue manufacturers with whom we do business that they use the label, and in that way help them to get new members, because if we all demand it those labels can only be obtained through Mr. Naylor, the secretary of the association, and that means that a manufacturer not a member of the association cannot get the label, and I consider it one of the greatest assets we have as to the handling of our tissue. It safeguards us against all dishonesty, and is a guarantee not only to ourselves but to our customers that the packages contain exactly what we are selling. For that reason, gentlemen, I certainly hope that every member of this association will, during the coming year, use every effort with the manufacturers with whom he is getting his tissues to get them to adopt the same.

I don't know that there is anything more I can say on this, but along the line of the additional sizes which they ask for I move you, sir, that we recommend the addition to Article 2 of the three additional sizes, also the note which I have a copy of, which I will ask the secretary to read.

The Chairman: I would suggest, Mr. Power, if you will accept it, that the secretary read the entire article, too, as amended by the manufacturers.

Mr. Lyter then read the following: "On special sizes not less than ten per cent. additional price for lots of less than the equivalent of 200 reams basis, 24 x 36, 10 pounds, 480 sheets. The following sizes may be considered as regular for all wrapping tissue papers: 20 x 30, 24 x 36, 10 x 15, 15 x 20, 18 x 24."

The note to that is: "Above does not apply to special orders for manufacturing purposes where odd sizes are used to conform to special requirements for one particular manufacturer."

Mr. Power: That note refers to odd sizes which are covered in the original article. That is, orders for odd sizes carry an additional ten per cent., I believe, except on orders of less than the equivalent of 200 reams, 24 x 36, which would be one ton.

Now, gentlemen, the manufacturers are certainly very much interested in this, and they are all endeavoring to continue the use of it, and we have heard a great deal along the line of co-operation, and therefore I trust that we shall at least co-operate with them to this extent.

I recommend that the three extra sizes and the footnote be incorporated in Article 2 of the Trade Customs, which we adopted last year.

The Chairman: Mr. Power, may I suggest that to simplify matters you make your motion to approve of this change in the Trade Customs. That would cover the whole proposition.

Mr. John Leslie: I would like to ask how long the Trade Customs which are now being revised have been in effect.

The Chairman: One year.

Mr. Leslie: Then I would like to know if I would be correct in the understanding that those people who have been mentioned here today buying skimped sizes have had to pay an extra price

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for it, or have certain manufacturers made up these skimped sizes without an extra charge, violating the present unrevised Trade Customs? I would like to know—in other words, this is a new proposition to some of us. Some years ago this association had a bad situation to deal with in tissue paper, and we stood for a bad system of accounting. Now how does it happen that the manufacturers having adopted this rule for a year we still hear about sizes 23 x 35?

The Chairman: I would answer that probably somewhat indefinitely from my own personal knowledge, some of the mills have neglected to use the label. That is one. And that is going to come up in a moment or two when we get this settled. They ask the jobbers to help them to get their members to use these labels by insisting that they put these labels on their orders. Now as to whether the mills have all lived up to this trade custom, I am unable to answer that, but I do know that the mills are working towards that and are endeavoring to get their members to do it.

Now perhaps someone else can answer that question.

Mr. O'Neill: If the order announced over 200 pounds, won't they make an extra size without extra charge?

Mr. John Leslie: That is not what it says. They say if somebody for manufacturing purposes wants a special size, they will make it. Now what do they mean by a manufacturing purpose? I take it they want to supply this paper to a converter, to the Denison Manufacturing Company, or someone like that; that they are simply changing it so that someone in New York can send in an order for 23 x 35 and ship it to them and have them sell it in a jobbing way. That leaves us just where we were before.

The Chairman: That point was brought up yesterday, and I regret that my answer to it is somewhat vague, but as I see it, their proposition is this: If a shoe manufacturer, for example, had his cartons of a certain length, and wanted tissue to fit right in with that length; in other words, if the order was manifestly not a skimp, the mills would fill it. What the mills are driving at is to get some method to cut down selling 19 x 29½ for 20 x 30, when it became a wrapping proposition, to be sold to a man who wraps up goods in it, and an unscrupulous dealer is trying to skimp the size, the same as he would skimp the count. That is what they are endeavoring to get around.

Mr. John Leslie: That is what they are endeavoring, apparently. But they have made it a perfectly proper custom for a man that sends in an order for a ton of tissue and make it a skimped size.

Mr. O'Neill: The very leader of this on the label has come to us and suggested our putting in these sizes. We never handled them in Philadelphia, but the mills have come and suggested it. We buy it as heavily as anyone here. We buy all ours in carload lots and have never had a shipment come in with a label. It has been necessary in the past to request them.

The Chairman: It seems to be because we have all had them without them. If you would request it on your orders you would get it, and insist upon it.

Mr. Power: Mr. O'Neill says that some of the mills have solicited business and asked them for orders for 23 x 35, but if they shipped them 23 x 35, Mr. O'Neill must understand that with the use of the label the label distinctly states that the paper in that bundle is 23 x 35, so you or no one else can go out and sell it for 24 x 36.

Now as to the small sizes, there are a great many odd sizes used by the shoe manufacturers, and no matter what the size is that size will appear on the bundle, whether it is 11 x 20 or 12 x 20 or 12 x 34, or any other size. The idea is that the size and the count will appear on each label, so that that is a guarantee to the jobber that the paper contained in those bundles is that size ordered, and also that there is 480 sheets to the ream.

Mr. John Leslie: I would like to suggest to our friend to amend the motion that we take a more positive stand than merely approving a suggestion of three new sizes; that we go on record and let the manufacturers know that we disapprove of any tissue being sent out without the size and count marked on the same. In other words, we demand the labeled tissue paper, and get a more positive action from this association, in the interest of honesty.

Mr. A. J. Corning (Baltimore): I believe that the tissue manufacturers understand just exactly what Mr. Leslie has set forth here, and we are losing sight of the fact that the tissue committee asked for a committee of our association to meet them, with the sole purpose of co-operating with them to do away with the unfair practice of putting out skimped sizes. Now they have asked to co-operate with them, to try and help them clean house, so that they in turn can help us clean house. The sole purpose of that meeting yesterday was for the purpose of getting closer together, finding out what evils obtained on both sides in the industry, and through hearty honest co-operation eliminate it, and the label was the happy thought that was the basis of eliminating that evil, and they have asked us to bolster them up still further amongst their weaker members by insisting on the use of that label and insisting on the use of that label in mills that are not now members of the national organization, by sending in a label attached to our order and instructing that mill, whether they are members or not, that the label can be had from Mr. Naylor, secretary of the Tissue Manufacturers' Association, and if those mills are not members of the national organization they will pretty soon want to be members, or else they will be outsiders and admit they cannot furnish the label.

The Chairman: I might say in answer to Mr. Leslie's proposition that the committee had that under a separate resolution in regard to insisting on these labels being put on shipments of tissue coming to each individual jobber, and Mr. Naylor has been asked for a sufficient quantity of labels, and your secretary, if that resolution is passed, later on will write a letter to each individual jobber enclosing samples of the labels and explaining them and asking each individual jobber to insist that his mill put those labels on his shipments.

Mr. Leslie: Well, Mr. Chairman, what about the individual broker who buys from the mill who doesn't want the label, who wants a skimped size?

The Chairman: It appears to me that that is still another question, which can only be eliminated by—

Mr. Leslie: By asking the mill to label all of their tissue paper for everybody.

Mr. Corning: We made the suggestion at that meeting yesterday that that label be given a great deal more publicity by the process of advertising. Make this label known everywhere among users of tissue paper as a guarantee of standard quantity, weight and count, and in that way if paper gets out unlabeled it will naturally indicate that it is not standard.

Mr. Blackman: Do I understand that these Trade Customs in connection with tissue paper were complied with by members, and if it is the sense of this meeting to meet the manufacturers in adopting those rules, why is not the amendment as suggested by Mr. Leslie perfectly correct? Why should we be called upon individually to ask them to do what we agree in a co-operate way to do?

Mr. Ballard: In the interest of plainness, by "labelling" it might be understood that it merely means labelling the bundle. If it means labelling every ream I think it should state that very plainly.

The Chairman: The motion then is that this body approve the change in Trade Customs as suggested, and that we ask the mills to ship no tissue without the label. Is that correct? Is that motion seconded?

The motion was seconded.

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Mr. Seinsheimer: I notice in the sizes they suggest putting in, they are all multiples of 24 x 36. Why should not they put in 12 x 18?

The Chairman: Well, that question did not come up at the conference. We have gone on for years with two sizes. Now the mills have given us three additional sizes.

Mr. Seinsheimer: Well, they are giving 10 x 15, which is smaller than 12 x 18.

Mr. Power: I think the manufacturers will be perfectly willing to add that size. The sizes they have taken there, the explanation of it was that those are standard sizes which they sell, and are commonly used for wrapping purposes in the small class stores, and I think if we should add 12 x 18 there is no question but what they would be glad to do it.

Mr. Seinsheimer: Another question I would like to ask Mr. Ballard. Their idea is to label each ream or each bundle?

The Chairman: No, not each ream or each bundle, but each ream and each bundle.

Mr. Seinsheimer: Suppose the dealer were to put in an order for a quantity of tissue, instead of having each ream sealed that he would request markers between each ream and put up 15 or 20 reams to the bundle. In that case each ream would not be labelled.

The Chairman: Can you answer that, Mr. Power?

Mr. Power: Only in this way, that the labels will have to be put into the bundles as well as on the outside of the bundles, so that there is no way of tearing the label off the bundle. The only way to dispose of a label will be to open the bundle and take the labels out. But of course, if it is not wrapped they couldn't very well put a label in each package. But there would be a label on the outside of each bundle, and they will put one label at least inside the bundle, or more, if the jobbers demand it.

The Chairman: Any further discussion? If not, we will pass on.

Mr. Power: Also this springs to my mind that yesterday they said where paper was put up—that they would be very glad to use as markers between each ream the labels.

The Chairman: In other words, the manufacturers are only too anxious to co-operate with us on this proposition. They realize now, although it was started by the jobbers, that it is of great benefit to themselves as well as to us.

Mr. Seinsheimer: I was only thinking that those matters should all be covered.

The Chairman: I think they can be and will be. The Committee on Bags, Mr. J. A. Carpenter, chairman.

Mr. J. A. Carpenter: It is the opinion of your committee, after an exhaustive investigation covering the trade centers of the country, that the stock of paper bags on hand in the hands of the paper jobbers at this time exceeds by about 25 per cent. that of a year ago, but that the stock of the manufacturers is exceptionally low. The economies enforced by the exceptional high prices on this class of goods the past year has resulted in an estimated reduction in consumption of about 10 per cent in the East and about 25 per cent in the West; against which, as an offset, there was probably a demand for about 10 per cent over the amount used in the previous year, owing to general prosperity of the country and increase in population. The difficulty in securing supplies of paper has resulted in the elimination of the cheaper grades of paper bags, with the entire approval of the jobbers as a whole, and the high prices prevailing have had the effect of curtailing the use of the higher grades of paper bags, driving this trade to the middle grades. It seems to be the universal opinion of the paper jobbers throughout the country that it is desirable to do away with the cheaper grades entirely for the future. The policy of guaranteeing staple prices for a period of three months from January 1 of this year by the manufacturer seems to meet the approval of the jobbing trade as a healthy method of stopping speculation. To summarize the year's business, will say that the bag trade as a whole has been exceedingly satisfactory, owing to freedom from disturbing influences; the ability to sell to the full amount of supplies obtainable, and to the steady rising market. It would appear that for the future that for the next thirty to sixty days a condition will exist about like the last thirty days, marked by extreme conservatism in buying all along the line, down to the ultimate consumer; and in that period stocks will be adjusted to normal amounts or less before any decided movement toward buying will commence. Prices to follow will naturally act in sympathy with the paper market. (Applause.)

The Chairman: If there is no discussion that report will be received and filed. The next is the report of the Committee on Twine, Mr. C. A. Shaw, chairman.

Mr. C. A. Shaw: Mr. Chairman, it is very hard for me to give a complete report, for the reason that although there are seven members of my committee, after trying to round them up, I was unable to find but one. You must know that I cannot report very definitely on what there is doing in a certain line in other parts of the country without at least seeing the members of my committee, and I would like to suggest before I say anything else about the twine that I wish there was some way we could impress upon the members of the committee if they cannot be present at the different meetings of the committee that they send substitutes. It will save a lot of time and worry on the part of the chairman.

Secretary Ridgway: May I say that the Committee on Revision of the By-Laws, which will report at the meeting tomorrow afternoon, is going to recommend the doing away entirely of the standing committees.

Mr. Shaw: I am very glad of that. Last year the chairman and I were present and had a very pleasant talk, but it is hard to make a report. Mr. Kearns, of Chicago, wrote me and we went over the subject quite thoroughly, and we both believe, although a great number of the jobbers handle twine, they don't give this department enough attention. There is probably no other line which will show more shrinkage and less margin of profit than the twine line, and there is probably no other line that receives so little attention in the paper business. There is also a good chance for profit if you give it attention, because it comes right along with the ordinary paper line, and there is not anybody that uses paper but who also has to use twine.

At the present time the twine market in all the different grades is very strong, with the exception of cotton, which in the last two or three days has taken a slump, but came back quite well yesterday, and the outline for the jute and flax and sisal and Manilla is very good for probably quite a number of months to come, and if the situation is properly handled the jobber should be able to make a good margin and good profit on this line.

I have written to all the members of my committee and tried to get them to get some information from the members of the different associations, and as far as I can learn from the letters and going over them again everybody seemed happy and perfectly satisfied. But that is not the condition which should exist if the thing was properly attended to.

The Chairman: We have all been happy at different times.

Mr. Shaw: The greatest evil we have in the New England market at the present time seems to be direct selling, and of course, unless we get closer together on the twine we cannot stop that.

I took up last year with the association the idea of forming an association of the twine jobbers who handle that exclusively, and carrying that matter a little further this year I wrote to each representative jobber in that line to see if they could not get together and form an association and then apply for entrance to this association or affiliation with it in some way, but I found out from these different jobbers that they are all so jealous of each other that they didn't want to come together. They said

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it would be impossible to do anything until the manufacturers got together, and the manufacturers seem to be further apart at the present time than they ever have been.

The Chairman: There is no association at all among the manufacturers.

Mr. Shaw: There is no association at all among the manufacturers or jobbers either. (Applause.)

There does not seem to be any unfinished business. Under new business the chair would entertain a motion for the appointment of a permanent conference committee, as suggested by the manufacturers of wrapping paper. Will anyone make that motion?

Mr. H. W. Mathewson: I make such a motion, that such a committee be appointed.

The motion was seconded.

The Chairman: I think from the discussion you know what that committee is for, and from the attitude of the manufacturers I cannot see anything but a good deal of good as a result from it.

Mr. Johnston: I suggest that committee be appointed from different sections of the country, because different conditions prevail in different sections.

The motion prevailed.

Mr. Ridgway: Just in explanation of the meeting, of course, this is the first time that the Fine Paper Division has had a separate meeting. That meeting will be held tomorrow morning. At that meeting only those stocking fine papers are supposed to attend. In the afternoon at 2 o'clock there will be the general meeting of the association, both divisions, and at that time a special committee on statistics will report. I think at that time the whole question of accounting and necessary working up of any lines of statistics that the committee determines upon will come up for discussion, and I don't know that it would be particularly advisable perhaps to go over it here and then report again tomorrow, but every member here should be at that general meeting tomorrow when that committee reports.

Mr. Beggs: I have a report from the Trade Customs Committee. The object of this committee last year was to recommend trade customs which could be adopted by the whole business. We found the condition among the mills was so unsettled, some mills asking 1½ cents differential and others asking only ¼ of a cent or ½ cent, and at the request of the manufacturers that a conference committee be appointed to confer with them, we can thoroughly adjust these evils, but your committee has nothing to recommend at this time, with the exception of the adoption of the cash discount trade customs. That we recommend to remain as it was before, 2 per cent 10 days or 30 days net.

The Chairman: Do I understand, Mr. Chairman, that you recommend that the discount terms stand as they are, 2 per cent 10 days, net 30?

Mr. Beggs: That is the recommendation.

The Chairman: Does that extend to the jobbers and their customers?

Mr. Beggs. That is the only jurisdiction the committee has.

The Chairman: Then a motion will be in order approving that report. That is really an important recommendation, one I think that should be sustained.

On motion the report was received and filed.

Mr. H. W. Mathewson: I listened to everything that has been said, and one of the things most important to my business has not been discussed, and I would like to know a little more about it. The differentials applying on wrapping paper today are simply appalling, and is this going to be taken up in this conference meeting which they are going to have with the manufacturers, and how is it going to be settled.

The Chairman: Do you refer to the differential between the different weights or the differential between sheets and rolls?

Mr. Mathewson: Differential between different weights. Some of them are half a cent, some are a cent, and some a cent and a half between 30 and 25.

The Chairman: Glad to have any discussion on that proposition.

Mr. Beggs: I believe that is the idea of this Committee on Conference, to take up these various subjects on which the mills are asking different differentials.

The Chairman: All these trade customs and trade differentials have been thoroughly discussed with manufacturers and will be in the future with this permanent Conference Committee which will meet every so often. In fact, they have even asked us to meet them this week, at their own request.

We have got to realize this, gentlemen, that the mills have their own problems in standardizing these trade customs, the same as we jobbers have our own troubles in getting all of our members, and those jobbers who are not members, to live up to our own trade customs in the way of cutting sizes, etc. The mills are up against the same problem in getting their own members to standardize these differentials, and a still harder problem getting the mills, a number of which are entirely outside of the American Pulp & Paper Association. The mills are just as anxious to standardize those customs as we are and have them all the same, and I think they will be very glad to work together to that end with this Conference Committee.

If there is no further discussion, a motion to adjourn will be in order.

Those Present

The following were present: R. P. Andrews, Washington, D. C.; Geo. W. Beatty, 419 Broome street, New York City; G. E. Beggs, Rochester, N. Y.; Howard L. Blake, Boston, Mass.; A. P. Bond, Baltimore, Md.; G. E. Caskie, Jr., Lynchburg, Va.; Frank W. Coar, Philadelphia, Pa.; A. R. Currie, Buffalo, N. Y.; H. C. Davis, Philadelphia, Pa.; C. W. Dickinson, Pittsburgh, Pa.; S. S. Dillard, Lynchburg, Pa.; M. T. Dilley, Youngstown, Ohio; Wm. E. Ebbets, 419-421 Broome street, New York City; F. J. Flemings, Lowell, Mass.; H. A. Grover, Cleveland, Ohio; C. L. Harlings, Rochester, N. Y.; Ed. T. Herrlinger, Cincinnati, Ohio; S. J. Hoagins, Topeka, Kans.; F. T. Jamison, Pittsburgh, Pa.; Robert Johnston, Norfolk, Va.; Geo. F. Leavitt, Philadelphia, Pa.; J. C. Mallabeir, New York City; H. W. Mathewson, Minneapolis, Minn.; Leslie W. May, New York City; F. C. Menke, Cincinnati, Ohio; F. A. O'Heilf, Philadelphia, Pa.; H. E. Platt, Philadelphia, Pa.; Peter S. Servis, New York City; H. J. Seveiance, Buffalo, N. Y.; George W. Sheridan, Boston, Mass.; T. H. B. Smythe, 414 Vine street, Philadelphia, Pa.; J. L. N. Smythe, Philadelphia, Pa.; Edward H. Stone, Boston, Mass.; M. H. Thomas, 18 South Sixth street, Brooklyn, N. Y.; E. T. Walter, Jr., Philadelphia, Pa.; M. V. Higgins, Indianapolis, Ind.; C. Celbilder, 141 North Fourth street, Philadelphia, Pa.; Charles W. Williams, 309 Lafayette street, New York City; C. F. Wright, St. Paul, Minn.

TECHNICAL ASSOCIATION

At the final meeting of the Technical Association held Thursday morning the following officers were elected: President, William G. McNaughton, of the Nekoosa-Edwards Paper Company; vice-president, H. P. Carruth, of the American Writing Paper Company; secretary-treasurer, Thomas J. Keenan. The members of the Executive Committee are W. G. McNaughton, H. P. Carruth, Ernst Mahler, Henry F. Obermanns, and Henry E. Fletcher.

The awards of $100 each in the prize competition conducted by the association were made to the following men: Max Oberdorfer, of the Central Paper Company; R. E. Cooper, superintendent of tests, Spanish River Pulp and Paper Company; S. E. Sutherland, of Marcus Hook, Pa., and Charles F. Bird, of East Walpole, Mass.

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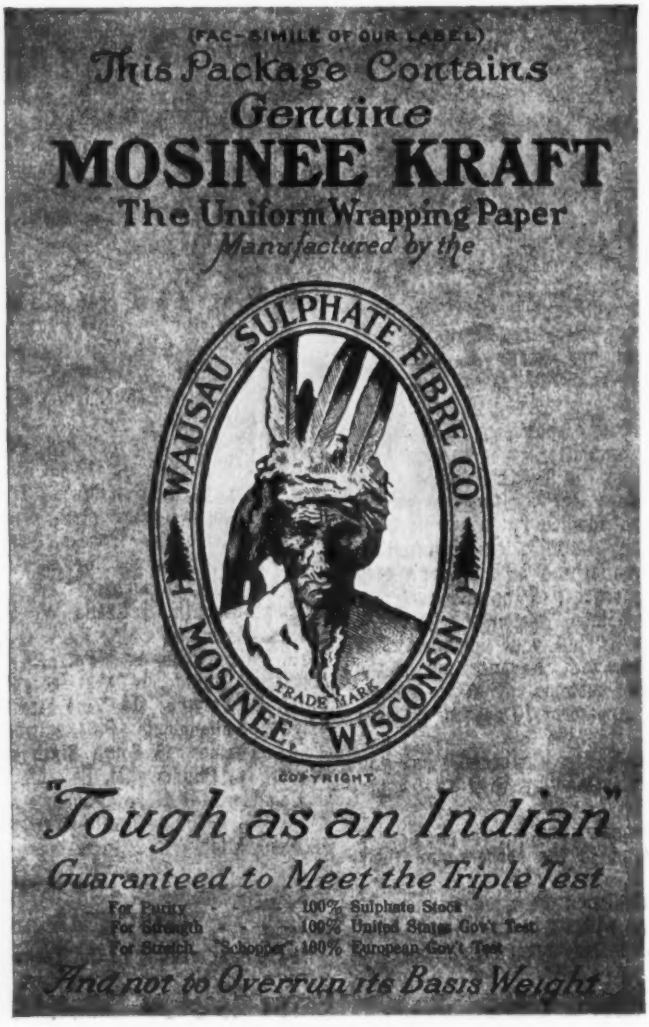

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MEETING OF FINE PAPER DIVISION, NATIONAL PAPER TRADE

The annual meeting of the Fine Paper Division of the National Paper Trade Association was held in the Myrtle Room of the Waldorf-Astoria on Wednesday, February 7, 1917, at 10 a. m. Vice-President George Olmsted, presiding.

The Chairman: I have not prepared any formal report as vice-president of this Fine Paper Division, first because I do not believe in long reports, and I doubt if I could write one if I wanted to. If I did it might be long, and we have a good deal to accomplish this morning. But there are a few things that I would like to say to the association.

We all know that we have passed through a very eventful period. We have gone through a good deal of stress, and it is fitting that we should gather here this morning and cast up what has happened and see if by that we can in a measure at least chart our future. I do not know how the rest of you feel, but I feel a good deal as a Dakota family must after a cyclone has struck them, and they have come up out of the cellar into what is left of the main floor, trying to find out where they are and what they should do to get the house in order. We have been making history very fast. I doubt very much if we have any adequate appreciation of just what this past year has meant to us in the paper business. We probably have not gone over our frontiers enough to know just what fortifications are standing and what ones are razed. When we get through we shall probably know, and it behooves all of us, I think, to study the situation just as carefully as we possibly can. I think we are prompted at a time like this to say one man's goods are just as good as anothers, and possibly the fact that it is so difficult to reach a conclusion as to what we ought to do might easily lead us into a condition of apathy, where we would not keep our minds on matters of great importance to us all. As I say, the business is going through a period of evolution. We are open to influences now that probably the people of this generation have never had before.

We all know something of the Federal Trade Commission and its investigations. I feel that this is something that we really ought to court. I have just returned from the annual meeting of the National Foreign Trade Council at Pittsburgh, and at that meeting Mr. Hurley, the chairman, gave a report on the work of the commission, and I feel that that commission can and is doing a great work, a real constructive work from the standpoint of business. We are sometimes apt to feel that a government commission is not in a very good position to advise business men as to what to do, because in so many things they seem to be rather unbusinesslike, but this commission is composed of business men, and they are really trying to help us work out our problems, and I think they can do a great deal for us, and we ought to enter into their work and study it and know its purpose and not particularly how it affects our business. I think that this association can congratulate itself that we have always tried to be not only well within the law in what we have done, but ethical in our activities, and I think we have nothing to fear from any such investigation.

The supreme test undoubtedly of what this association means to us all is going to come as an aftermath of what we have gone through. We do not know just when it is going to come, because there are too many factors involved to make that possible, but come it will, and we want to be prepared when it comes and we want to prove if we can that this association was established on right lines, that it is well grounded, and that it has a right to be. Then will come the test, as I say, as to just how co-operative we are as local associations and as individuals. We shall have very many problems presented to us. We have a good many years' experience back of us to equip us to handle those problems intelligently and scientifically. The proposition for instance, of getting back to what we might call normal, not meaning by normal that the precedents of the past will determine what that is, but after this is over there will be a normal position or level for us to keep, and in the process of reaching that level we shall have to do everything in our power to create the right conditions, and it will be very easy indeed to have more or less pandemonium exist.

For instance, as an illustration, today I found in talking with most of the paper men throughout the country from different sections that there has been a falling off in the demand for paper, especially during the last 30 days. That might easily be accounted for by the holiday season and inventories and raids on the stock market, further complications in connection with the war, and that sort of thing. But still, buying has apparently suffered something of a recession at least in some lines. That right in the face of the fact that probably the raw material situation was never any worse than it is now. I have just been up in Canada looking over conditions there, and it is not just idle talk that we get from the manufacturers—and we get a good deal from them about the seriousness of the situation, but it actually is serious. With a falling off of the demand—if one should come, and the prevailing opinion seems to be that the wave will come back with the situation just as it is now, we shall have a falling off of business, but just assume that it did not and the raw material situation should continue serious, there would be a situation there, a very heavy situation, and we want to be equal to it. Our manufacturers are expecting a good deal, I imagine, of this association. They are expecting that when that time comes we shall come to the front in the right way.

I think that we also ought to in this association make a study of the work being done by older associations in other lines of industry, the purpose of which is practically the same as our own. Some of them are older, have more experience, and I am hopeful that this coming year we can get a better line on just how to do things, so that we can accomplish some things we have not been able to.

And then I think we have to study carefully the scope of our activities. We do not want to go beyond what properly belongs to such an association as this. I think we have all seen associations that have tried to go too far. We probably have in most respects never gone far enough.

Another point I want to make is that I think we have been rather inclined, first as individual members of a local association, to pass an opinion upon some question feeling that it possibly was not of great importance, and not realizing that passing that opinion as an individual might easily complicate any action it might seem wise for a local association to take, and then the local association frequently passes an opinion or takes an action on an important question without realizing how it will embarrass the work of the National Association. I think we all ought to get into the frame of mind of feeling "well, now, that is a matter for the National Association," and have it come up before the Executive Committee of the National Association and be thoroughly discussed and thrashed out, so that we shall get all the enlightenment we can, and then take our action. We have been quite seriously embarrassed on a number of occasions because that procedure has not been followed, and I think you will all agree with me that is the thing to do, and if our association is not together as it should be, it will become a matter of habit to refrain from taking this individual action either as local associations or as individuals.

Now in connection with our co-operation with the paper mill. We ought to feel that while we will say the mills (speaking in terms of their association and our own) have definite exclusive

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functions to perform, still we can bring those bodies so close together that the line of demarkation will answer for both parties, and still neither need in any way transgress on the field and function of the other. We are part and parcel of them. It ought to be just about like two separate departments of a business. We are the distributing end of the business. It is not a question of the supremacy or domination or anything of that kind, but understanding the scope of our work, each party to the relationship I think that we can work out a whole lot which we have not, up to this time. I think we ought to make that a particular point of our thought and consideration this year, to see how far we can go, and I am sure we can go very much further than we have in working out the right order of business, and with that accomplished I think we shall go a long way towards realizing our true destiny. I thank you, gentlemen. (Applause.)

The next order of business is the report of the secretary, Mr. Ridgway.

This is the first separate meeting of the Fine Paper Division of the Association. Matters should be confined entirely to those affecting the Fine Paper Division at this meeting. The meeting this afternoon will be the general meeting of the association, at which will come up the formal matters, such as the treasurer's report, the revision of by-laws, the election of officers, etc.

During the past year a number of conferences have been held with the various manufacturers. In May a conference was held with the Writing Paper Manufacturers Association—or rather a committee from that association—on the subject of terms. The outcome of that conference was Trade Custom No. 18, and I presume you are all familiar with it. I think at some time during the year it has been the subject of a little bit of discord and clash between manufacturers and jobbers, but I do think that the members who have thought at all about it must realize that that trade custom is reasonable.

Following that, in the month of June, a conference was held between the Committee of the Writing Paper Manufacturers Association and the entire Executive Committee of the Fine Paper Division at Erie, on the subject of the manufacture of paper to standard substances, and its sale at a list price. At that conference a clear cut, well defined difference arose between this association and the Writing Paper Manufacturers. There was a unanimous opposition by the board to the sale of paper at a list price. I think you are all aware of the final outcome of that, viz: That at a meeting of the Writing Paper Manufacturers Association held at Niagara Falls in the Fall their original resolution, which contemplated putting that list price into effect at this time, was so modified that it was at the discretion of the individual manufacturer as to whether he did it or not. I think we are safe in saying that no individual manufacturer is going to follow that plan.

In the Fall the manufacturers of book paper, through their association, requested the jobbers to take up with them the matter of the manufacture of book paper on this same plan of manufacture to standard thicknesses. A committee from them met our Executive Board at its October meeting, and after conference at that time a sub-committee of the Executive Committee was appointed, and in December they met again in New York and agreed to a general plan, notice of which has been sent to all the members. There is no use at the present time that I know of in going into any of the details.

I might say in this connection that a committee was appointed at the present meeting of the Executive Committee on the matter of coated paper, and that committee will report later at this meeting.

The matter of the relative sizes of the two divisions of the association I think is a subject for a little comment here. Under our plans of organization those who regularly stock coarse paper enroll in the Coarse Paper Division; those who stock fine paper enroll in the Fine Paper Division, and of course those jobbers who regularly stock both enroll in both divisions. Today we have a total individual membership of 286, and there are 183 enrolled in the Coarse Paper Division and 189 in the Fine, so that you see the balance is pretty nearly equal.

There is one further matter that I would like to touch on, because I think it will come up more fully at the meeting this afternoon, when a special committee on the subject of statistics will report, but I was in Washington in December at the hearings before the Federal Trade Commission on News. At that time I had a talk with one of the investigators of the Federal Trade Commission. He made what to me was a most astonishing statement. He told me that he had had considerable experience in accounting in various lines of business; that he had within the last few months examined the books of over 20 paper jobbing houses in various sections of the country; that of all he had examined he had only found two systems which he considered modern in any respect; that he had found one set of books had not been in balance for four months; that it would take the work of one man in another house—not a very large house, either, he said—a week of steady work to ascertain what the sales had been of any given line of paper over any given period of time. He made the statement that in his opinion if the Paper Association amounted to anything, one of the first things they would do would be to advocate and push the matter of modern accounting among its members. Of course, our president has referred to the fact that the Federal Trade Commission has come out strongly advocating the use of uniform accounting systems in any trade. The propriety of that is evident. It needs no argument. It does seem to me that at this time in particular, when the treasuries are rather full, some of that money—it does not cost much—might be used in installing a system that is worth while. (Applause.)

The Chairman: The next order of business is the report of the Executive Committee.

Mr. John A. Church: The special committee, appointed from the Executive Committee to confer with the coated paper manufacturers, has the following report to make: The conference was arranged for and held in the Assembly Room, Waldorf-Astoria Hotel, New York City, on the morning of February 6, 1917. At this meeting were representatives from many of the leading coated paper manufacturers, and also there was presented written views and expressions from several manufacturers not actually present.

It was clearly brought out that no actual and working organization of coated paper manufacturers was in effective operation at the present time, but that strenuous efforts were being made by the manufacturers themselves and by Judge Moore of the Bureau of Statistics, Book Paper Manufacturers, to get all coated paper manufacturers to report and operate through the Bureau of Statistics.

Your committee felt that sufficient evidence was produced of a desire of coated paper manufacturers generally to operate on a uniform substance or weight base schedule to warrant entering into negotiations to that end. Hence a tentative plan was outlined and agreed to by your committee and by the manufacturers for presentation to and approval by the National Paper Trade Association, it being understood that if approved by our association the plan was to become effective March 1, 1917.

The plan as laid out is as follows:

1. Covering, coated two side book paper only.

2. The basic weight of coated book paper to remain 70 pounds to the ream in size 25 x 38 inches, as per Coated Paper Trade Customs.

3. Additional charges for base weights lighter than 70 pounds basic weight, to remain same as set forth in Coated Paper Trade Customs.

4. Additional charge for less than 5,000 pounds of one size and weight, but of irregular size or irregular weight, or irregular

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size and irregular weight to remain same as set forth in Coated Paper Trade Customs.

5. Lots of 5,000 pounds or more, of one size and weight, will be made as per Coated Paper Trade Customs in irregular size or irregular weight or in irregular size and irregular weight without extra charge, subject only to additional charge for "light weight," if order be for "light weight."

6. It is not obligatory upon jobber or manufacturer to actually carry in stock all sizes and weights which appear on table attached as having been established as regular stock sizes and weights.

7. Manufacturers will supply to jobbers without additional charge except for "light weight," if order be for "light weight," lots of 2,500 pounds or more of one item in any or all regular sizes and weights, appearing on table of regular sizes and weights attached. This applies on regular sizes and weights, on the schedule, which are not actually carried in stock at the mill.

8. Where manufacturers of coated book paper carry in stock at mill certain regular sizes and weights in lines regularly made or sold by such manufacturers, the manufacturers will accept and ship orders for one case or more of an item—even case lots—without any additional charge except for "light weight" if order be for "light weight."

9. Papers made on any of the following stock base weights shall be regular in weight. Basis 25 x 38, 60 pounds, 70 pounds, 80 pounds, 90 pounds, 100 pounds, 120 pounds to the ream of 500 sheets.

10. Papers made in any of the following sizes shall be regular in size:

24 x 36	30½ x 41
25 x 38	32 x 44
26 x 29	33 x 46
25 x 40	35 x 45
28 x 42	38 x 48
28 x 44	38 x 50
29 x 45	41 x 61
29 x 52	42 x 56

44 x 56
44 x 64

11. Orders for 5,000 pounds or more of one size and weight regular size or irregular size, will be made in any "intermediate base weight," such as basis 63 pounds, 74 pounds, 85 pounds, 96 pounds, 107 pounds, etc., without additional charge except for "light weight," if order be for "light weight."

12. In stencilling or marking packages containing coated book paper whether cases, bundles, frames, crates or however packed, all information as to so-called substance weight, thickness weight or base weight to be eliminated; i. e., left off. All packages to be stencilled with size and weight.

John A. Church, chairman. W. F. McQuillan, R. P. Andrews, S. S. Alcorn, B. E. Reeves, Forest Hopkins.

On motion the report was adopted.

The Chairman: I think we had better, while we are at it, just tack on to this a vote of acceptance of the same plan in connection with the plain papers, the super and M. F., and I think you all know that. It was printed in the Bulletin. I think we have all heard enough to know about it. The Chair will entertain a motion that that be adopted.

Such a motion was unanimously adopted.

The Secretary: At the suggestion of the Writing Paper Manufacturers Association the Executive Committee has empowered the vice-president of the Fine Paper Division to appoint a conference committee, which shall serve for the coming year, for the purpose of conferring at intervals of not more than three months—and probably at more frequent intervals if occasion requires, with a similar committee from the Writing Paper Manufacturers Association. It is the feeling of your Executive Committee that this is a step in the right direction, and that great good should come of it.

Mr. M. L. Kratz: Mr. Chairman and gentlemen, your Committee on Ledger Paper begs to report the following:

1. That we recommend to manufacturers of ledger that a way be found whereby double sizes be listed in weight at twice the weights of the single sizes.

2. According to this committee's understanding of trade customs, two manufacturers of No. 1 Ledger are not billing broken packages correctly. Instead of billing at list less regular discounts plus 20 per cent, we understand they bill at list less 30 per cent flat. We recommend this matter be given the attention of the proper committee.

The Chairman: If there is no discussion of this we will file these reports as made. Report of the Committee on Cardboard, Mr. W. H. Holden, chairman:

Mr. W. H. Holden: As you all know, the conditions in the card board trade during the last year, were as in all lines connected with our trade, unparallelled—the jobber was dependent upon the manufacturer—the manufacturers have been dependent upon the mills to furnish body stock, and in a great many instances we have figured on orders that would take a size different from regular, which is apparently 28½ inches, and they have been unable to supply stock. They have been handicapped by the pillows, being unable to supply the pillows and get a uniform pillow, which has caused considerable trouble. At the same time we feel that they have given their best efforts, and we appreciate the co-operation we have had from the mills in that respect.

We recommend again, as we did last year, the size for card board and blank 22½ x 28½. If you remember, there was considerable opposition to the size in the West, but we still feel that for uniformity and for a basis which is satisfactory to meet all mills that that would be the most satisfactory to us.

And we also recommend that the mills make these different filled boards on a point system, or if made in the ply, four points constitute a ply. We feel there is a variation in most all the manfacturers in the way that their stock is put together. Some calender down a little more than the others, and it is rather difficult at times to clearly determine. A man will ask for five ply, and the stock may point up to a basis of four, the variation being so different.

We found that some mills, owing to their inability to get body stock have had to discontinue certain lines. We appreciate that, because we know they have had hard work to get their body stock.

The committee recommends, if possible, that a committee be appointed by the association to confer directly with the manufacturers, taking up matters directly that will be of interest to the jobber and the manufacturer. In a number of instances we have taken up certain recommendations and suggestions with the association. They have been referred back to the Executive Committee, and we hear nothing further from them. We do not know whether they have been adopted or not. And at the present time some of the members of the committee suggested that perhaps our recommendations at the last year's annual meeting were not approved. We would like to hear in some short space of time in regard to that. We are only a small part of the National Paper Trade Association in the card board line, but we really feel we are entitled to be recognized and to get reports on these different recommendations that we make, either through the chairman of the committee, who can notify other membrs of the committee, or through publications. Thank you, gentlemen. (Applause.)

The Chairman: Possibly it would be well to have this take the form of a resolution that can go before the Executive Committee—this matter of the appointment of a committee as Mr. Holden suggests.

Secretary Ridgway: In explanation of that, I would suggest that the By-Laws Committee, which will report this afternoon, is going to recommend the doing away of these standing com-

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mittees which we have had, and the handling of these matters by the Executive Committee and special committees to be appointed from time to time as occasion requires, and it seems to me that the action now should be that this body wants a committee to confer with the card board manufacturers. The resolution should take some form that such a committee be appointed, and that the vice-president of the Fine Paper Division be authorized to appoint such committee.

Mr. Andrews: I would move that the report of this committee be accepted and that the chair appoint a committee on card board to carry out the recommendations of this committee.

The Chairman: I would like to ask in connection with the by-laws, would the chair appoint that committee?

Mr. Andrews: That should be referred to the chair, I think, because then it can have prompt attention.

The Chairman: It would be if it were adopted.

Is Mr. Andrews' motion seconded? Suppose you just state that again so they will be shown.

Mr. Andrews: My motion is that the committee's report be received and that a special card board committee be appointed to carry out the recommendations embodied in this committee report.

The Chairman: To be appointed by the vice-president of the Fine Paper Division?

Mr. Andrews: Yes.

The Chairman: You have heard the motion. Is there a second?

The motion was seconded.

The question was then put and the motion prevailed.

The Chairman: The next report will be the Committee on Book Paper, Mr. B. E. Reeves.

Mr. Reeves: About all our committee has to report at this time is prosperity. It was seen that in spite of all our bad conditions in 1916 that every book paper man has made money for the first time in the history of the book paper trade. We believe that the so-called substance weight plan is excellent, but we do believe that this association should make every effort to get every single dealer to carry it out, not only to insure uniformity in stocks, because it is really going to be a bad time for some of us if some of us use the old and some the new, but to show the manufacturers we are with them. And we also believe the association should endeavor to get every book paper manufacturer to agree to this plan.

We also recommend that a conference committee be appointed for book paper to take up the matter of what may be developed when conditions start the other way, because we are going to face a pretty serious time when prices go down. If we have a committee similar to the Writing Paper Committee we shall be able to meet those conditions.

Mr. Andrews: Mr. President, I move that the report of the Book Paper Committee be received. But I would also move that the recommendation to appoint a conference committee at this time be not concurred in. I believe it was the idea or the purpose of the printing of the new by-law that these committees would not be appointed; in fact, that is the way I understand it, until such time as there was something to confer about. There is something to confer about on the card board question. There is a proposition to standardize the size of card board, which is a very important one. But at the present time we have nothing of importance, as I understand it, to take up with the book paper manufacturers, and when such things do come up I think it would be more important or better business to appoint that committee at that time. Conditions may be such that members appointed now would not be the proper ones to act upon that committee if some such question came up. Now I may have a misunderstanding about that, but if we had a conference committee appointed here now to cover every branch of the trade, it would amount to just what we have now —standing committees.

Secretary Ridgway: I might say for the information of the members that the Executive Committee at its meeting passed a resolution that the vice-president ascertain from the manufacturers of both book and cover paper whether the manufacturers thought such a conference committee on either line would be advisable at the present time, and if they were favorable to the idea the vice-president was empowered to appoint such a committee. I think that would cover the situation entirely.

Mr. Reeves: That is satisfactory to us.

The Chairman: Mr. Reeves' report will be placed on file. The next is a report of the Committee on Envelopes, Mr. A. E. Whiting, chairman.

Mr. Whiting: The committee wishes to submit one or two points for your consideration. The Envelope Manufacturers' Association have a standardization committee that is now at work trying to find out some uniform way of designating the same size and style of envelopes. There has been considerable confusion and oftentimes errors and mistakes in shipments, etc., owing to there not being a positive standard for all kinds of envelopes. Now, I think it would be of value to all dealers and be quite a help to the manufacturers' committee if we found some way, either through the secretary or otherwise, to get information as to these sizes, where mistakes have occurred and recommendations, so that we can try and settle that thing.

So the standardized sizes and the one cent letter postage there ought to be a lot of agitation on.

Those are our recommendations that we submit for your consideration.

Mr. Andrews: Mr. President, I would like to ask the chairman of the committee if the committee considered the direct selling by envelope manufacturers in the course of their deliberations. The reason is I don't know whether you are troubled with it all over the country, as we are down our way, but we have a concern in Richmond who drums the printing trade of Washington and Baltimore and sell 500 or 1,000 envelopes direct to the printer. If they cannot sell the printer, and they can find out who the printer's customers are, they go to the printer's customers and sell them printed. Now, I think those things should be aired in a meeting the size of this to-day, and if there are any jobbers who are buying from that concern I think they ought to know their practice in Baltimore and Washington, and I am here to tell you.

Mr. Nacht: As a New York representative we seem to have that same trouble here. The envelope manufacturers of this city, through their offices in the various towns where they manufacture envelopes, try to gain business, but they also open offices in the city and they practically peddle through office buildings and try to get printing orders for envelopes. Now, why cannot we start now in a gradual way and try to correct the envelope trouble. We need not be in a hurry about it, but I think if we dealers get together and work in unison and go gradually at it we can succeed.

Mr. Whiting: The committee spent considerable time on that subject, but we did not see that we could bring in any recommendations; that is, there was nothing concrete. In certain cities the jobbers there have the situation well in hand, and there is very little direct selling. In New York, Philadelphia and Chicago there is a lot of direct selling, and there are several manufacturers in the country who have a policy of doing the selling. We did not see what we could bring in. It seemed to be a matter that would have to be left to each local association.

The Chairman: It would seem in the case of the Envelope Committee it might be called a continuance committee instead of a conference committee. But I think there are a good many

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important subjects involved in this envelope situation. I don't doubt but what the appointment of a committee to go over the whole subject in a painstaking and exhaustive way would be very wise.

Mr. McLellan: I call the attention of the committee that I do not think this a particularly good time to try and get one cent postage on account of increased taxation.

The Chairman: This report will also be placed on file.

(The following is the report):

February 7, 1917.

Mr. President and Members of the Association:

Your Committee on Coated Paper has made a thorough investigation through its different members of their respective local associations and find the coated paper situation, as far as the jobber is concerned, in very good condition. As the Executive Committee has taken up, among other subjects, the coated paper situation, this committee has nothing of importance to suggest at this time. It was the general opinion and wish that new trade customs as now being discussed and taken up by the Executive Committee be adopted.

Respectfully,

COATED PAPER COMMITTEE,

John A. Andrews, Chairman.

The Chairman: The next is the Committee on Cover Paper, Mr. James White, chairman. I believe Mr. White is not here, but he has turned the report over to Mr. Bradley.

COVER PAPER REPORT.

Mr. Chairman and Gentlemen of the National Paper Dealers' Association: Your Cover Paper Committee has pleasure in reporting that there are no serious questions in connection with that section of the trade to be brought before this convention.

The general feeling of the trade is, as has frequently been expressed at annual meetings during the last few years, that the multiplicity of cover lines should be discouraged, and just recently one manufacturer expressed the opinion that it would be an ideal condition if cover paper could be confined to one size.

Considering the retail nature of the sales in this branch and the kind of printing generally applied to covers, your committee cannot feel that a departure from the two sizes or their doubles—now generally found in dealers' stocks—can be recommended.

It may be of interest to others in the association, as well as to the members who handle cover papers largely, to give a little thought to the following figures, which apply to a cover paper stock in what is called the Middle West.

The idea which prompted the compilation of them was primarily to show that however often other styles of papers, such as book, bond, etc., turn over covers are in the slow-moving column.

Twenty lines were selected which fairly represent the whole stock; some which sell freely and some not so well, and all values included.

In weight these twenty lines amounted in January, 1917, to 873,897 pounds, and of this amount 264,100 pounds was on hand in January, 1916. In other words, about 30 per cent. of this stock had been carried a year, and some of this 30 per cent. much longer.

The value taken at actual cost was $83,443.46, and if figured at the mill quotations of January 2, 1917, f. o. b. at depot, was $109,504.98.

As $83,000 is to $109,000 practically 7 per cent., it follows that an inventory figured at quotations of January 2, 1917, would show the actual cost to be 24 per cent. less.

No doubt others have found by other methods perhaps that on the whole, with customary variations incident to fast and slow selling stocks, this average would hold good for the country at large.

As a cover paper stock of large or fairly large proportions must always have in it many lines or items that have to be carried from six months to years, it must be recognized that selling prices should be so adjusted as to offset this slow-turning investment.

It is left to your committee to suggest therefore that what might be called retail sales (broken packages and those from a full package up to 500 pounds or a case) ought to bring prices which will balance the small returns procurable from competitive wholesale or mill orders.

The Chairman: The next is the report of the Committee on Writing Paper, Mr. C. N. Bicknell, chairman.

Mr. Bicknell: The questions for discussion on writing have already been presented to the meeting, and the standing committee has no further recommendations to make.

The Chairman: The next is the Committee on Trade Custom, Mr. W. F. McQuillen, chairman.

The Committee on Trade Custom recommends that no action be taken on this subject at the present time.

The Chairman: While we are all here I would like a few words from our president as to the necessity of our being here this afternoon.

President Thomas F. Smith: That was not what I whispered to Mr. Omsted about. I really have nothing to say to you. I will say all I have to say this afternoon, and more than probably you will like to listen to, but I am very pleased to see such a splendid attendance, and I hope you will all honor me with your attendance this afternoon in this room at 2 o'clock.

On motion the meeting adjourned.

The following attended the meeting: A. A. Adams, Providence, R. I.; Charles Addams, New York city; R. P. Alexander, Indianapolis, Ind.; Ira L. Anderson, Richmond, Va.; F. W. Anderson, president, 34 Beekman street, New York city; John A. Andrew, Boston, Mass.; R. P. Andrews, Washington, D. C.; James Andrews, Philadelphia, Pa.; Charles H. Baldwin, 118 Worth street, New York city; B. W. Barton, Baltimore, Md.; Oliver O. Bauman, Buffalo, N. Y.; Leon Beck, Philadelphia, Pa.; Charles W. Beers, Baltimore, Md.; Wm. H. Beaver, Philadelphia, Pa.; C. N. Bicknell, Cleveland, Ohio; Arthur W. Blackman, Boston, Mass.; Benj. F. Bond, Jr., Baltimore, Md.; B. F. Bond, Baltimore, Mr.; Cutler Bouestell, San Francisco, Cal.; J. G. Boshart, Duluth, Minn.; Neill S. Brown, Pittsburgh, Pa.; Arthur L. Brown, Cincinnati, Ohio; Walter B. Buchanan, Philadelphia, Pa.; Alex. Buntin, Toronto, Canada; John C. Burke, Baltimore, Md.; Arthur M. Burr, Boston, Mass.; Matthew O. Byrne, Boston, Mass.; George C. Carpenter, Des Moines, Iowa; J. A. Carpenter, Kansas City, Mo.; James Richard Carter, Boston, Mass.; Herbert L. Carter, Boston, Mass.; W. N. Chatfield, Pittsburgh, Pa.; John A. Church, Cincinnati, Ohio; R. M. Clements, Hashville, Fla.; D. C. Culbertson, New York city; F. B. Cummings, Boston, Mass.; Harry F. Donahue, Philadelphia, Pa.; A. M. Eaton, Boston and Waltham, Mass.; C. R. Field, Omaha, Neb.; James L. Floyd, Indianapolis, Ind.; F. Forchheimer, Cincinnati, Ohio; Max Frank, 100 Federal street, Boston, Mass.; John O. Franz, Philadelphia, Pa.; Arthur C. Hall, Boston, Mass.; Arthur E. Ham, Boston, Mass.; A. Harbury, Philadelphia, Pa.; A. P. Hawley, 24 Beekman street, New York city; S. J. Hodgins, Topeka, Kan.; Wm. H. Holden, 24 Beekman street, New York city; Robert Johnston, Norfolk, Va.; Joseph Joyce, Chicago, Ill.; R. C. Kastner, 109 Worth street, New York city; R. C. Kastner, Jr., 109 Worth street, New York city; Frank A. Kearns, Chicago, Ill.; E. U. Kimback, Chicago, Ill.; Chas. Koch, Baltimore, Md.; Martin L. Kratz, Buffalo, N. Y.; John F. Kuster, Boston, Mass.; J. B. Jones, Omaha, Neb.; Sydney T.

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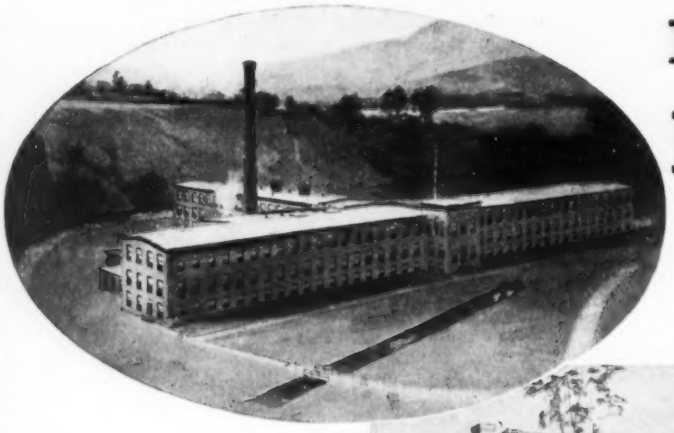

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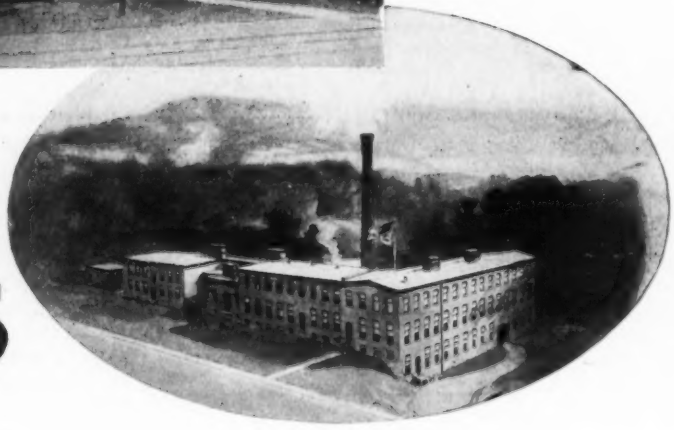

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Jones, Albany, N. Y.; Chas. A. Lambie, Pittsburgh, Pa.; D. S. Landau, 200 Fifth avenue, New York city; F. G. Leslie, St. Paul, Minn.; John Leslie, Minneapolis, Minn.; B. W. Lifromby, Richmond, Va.; Fritz Lindenmeyer, 33 Bleecker street, New York city; W. B. Littleton, Hagerstown, Md., and Jacksonville, Fla.; C. H. Lowe, Boston, Mass.; John Martin, Winnipeg, Canada; R. E. Mathers, Washington, D. C.; M. D. McAlpin, Chicago, Ill.; Fred L. McClellan, Minneapolis, Minn.; Geo. McKinney, 32 Beekman street, New York city; W. C. McLoughlin, Cincinnati, Ohio; Edward J. Merriem, New York city; Albert M. Miller, Columbus, Ohio; O. A. Miller, Columbus, Ohio; J. F. Miller, Detroit, Mich.; Geo. Momberg, Cincinnati, Ohio; R. E. Myers, Rochester, N. Y.; Frank H. Newell, Boston, Mass.; J. Nacht, 45 Beekman street, New York city; A. D. Taylor, Memphis, Tenn.; Geo. Olmsted, Chicago, Ill.; H. A. Olmstad, Dallas, Tex.; J. W. Butler, Chicago, Ill.; R. E. Parker, Chicago, Ill.; Frank F. Parsons, Washington, D. C.; W. W. Platt, Rochester, N. Y.; H. E. Patterson, Chicago, Ill.; E. A. Patrequin, Cleveland, Ohio; Charles S. Proctor, Boston, Mass.; J. Evan Reese, Baltimore, Md.; B. E. Reeves, Rochester, N. Y.; I. H. Reid, Cincinnati, Ohio; Charles H. Ris, 417 Lafayette street, New York city; G. L. Rodier, Boston, Mass.; F. A. Roll, Philadelphia, Pa.; H. Newton Schillinger, Baltimore, Md.; Louis Schuman, 25 Beekman street, New York city; Chas. A. Shaw, Boston, Mass.; Walter Seinsheimer, Cincinnati, Ohio; W. T. Sibley, Buffalo, N. Y.; Elliott B. Silver, Philadelphia, Pa.; L. P. Sine, Lincoln, Neb.; Andrew Simon, Philadelphia, Pa.; S. L. Sloan, Atlanta, Ga.; A. Lawrence Smith, Detroit, Mich.; Thos. Smith, Louisville, Ky.; Arthur H. Smith, Pittsburgh, Pa.; Thos. Smith, Louisville, Ky.; Geo. T. Smith, Richmond, Va.; Joseph D. Snell, 114 Pearl St., Boston, Mass.; W. B. Stevenson, Boston, Mass.; E. J. Stilwell, Minneapolis, Minn.; A. E. Stevens, Detroit, Mich.; P. A. Stuhbreyer, Cincinnati, Ohio; John D. Swigart, Chicago, Ill.; A. C. Thomas, 32 Beekman street, New York city; Morgan H. Thomas, Philadelphia, Pa.; R. H. Thompson, Buffalo, N. Y.; Geo. R. Tolen, Chicago, Ill.; F. Beudel Tracy, 145 High street, Boston, Mass.; W. L. Van Alstyne, Troy, N. Y.; P. A. Van Vlack, Chicago, Ill.; Paul E. Vernon, 22 Reade street, New York city; Kit S. Warner, 85 John street, New York city; Adolph Warshow, 460 Broome street, New York city; M. H. Warren, Boston, Mass.; George L. Webb, Boston, Mass.; F. C. White, Chicago, Ill.; John White, Chicago, Ill.; A. E. Whiting, Philadelphia, Pa.; F. W. Wilson, San Francisco, Cal.; C. F. Wright, St. Paul, Minn.; B. W. Wilson, Richmond, Va.; A. E. Fuhlage, St. Louis, Mo.; W. N. Gillett, 801 S. Fifth avenue, Chicago, Ill.; Spencer Lachrop, 29 Lafayette street, New York city.

GENERAL MEETING NATIONAL PAPER TRADE

The fourteenth annual meeting of the National Paper Trade Association was called to order at 2 o'clock P. M. on Wednesday, February 7, 1917, at the Waldorf Astoria Hotel.

President Thomas F. Smith in the chair.

The Chairman: Gentlemen of the National Paper Trade Association and guests: It is indeed a great honor and a pleasure to be President of this great organization. We have with us to-day paper jobbers from Coast to Coast, and indeed your fame has spread further than the confines of our great nation. We are honored to-day with the presence of two Canadian representatives, and I am going to introduce these gentlemen to you. I want to have them stand up to introduce them to the National Paper Trade Association. One is Mr. John Martin, the other is Mr. Alec Benton. Mr. Martin and Mr. Benton, will you stand up so these gentlemen may know you? (The Canadian guests arose and were greeted with generous applause.)

The Chairman: Now, gentlemen, I have prepared a short address, but I want to say in the beginning that it is a day of confidence. The past year has shown the jobbers what we can do if we ask reasonable prices for our goods, and we all hope that none of our jobbing friends will ever permit themselves to fall back into the old-time method of selling goods below cost. That is a serious thought, gentlemen, which you all should bear in mind. There is another thing I want to ask you. The basis of accomplishment is good fellowship and co-operation. I would like to see in this meeting to-day a free expression of opinion. Any of you gentlemen who have something to say, don't be too modest to advance it, but come right forward and tell us just what you think. We all, I know, will appreciate it.

This should be a day of rejoicing, for we have just rounded out probably the most eventful year to be recorded in commercial history.

It is not my purpose nor my privilege to forecast coming events. It, however, is my duty to recommend caution and conservatism, and lay before you facts, no matter whom they help or hurt. I appeal to you for advice and co-operation.

This association should be the central force from which good ideas should emanate, and be freely discussed for the benefit of all. It should be the creator of high business principles, which will demand the respect they deserve.

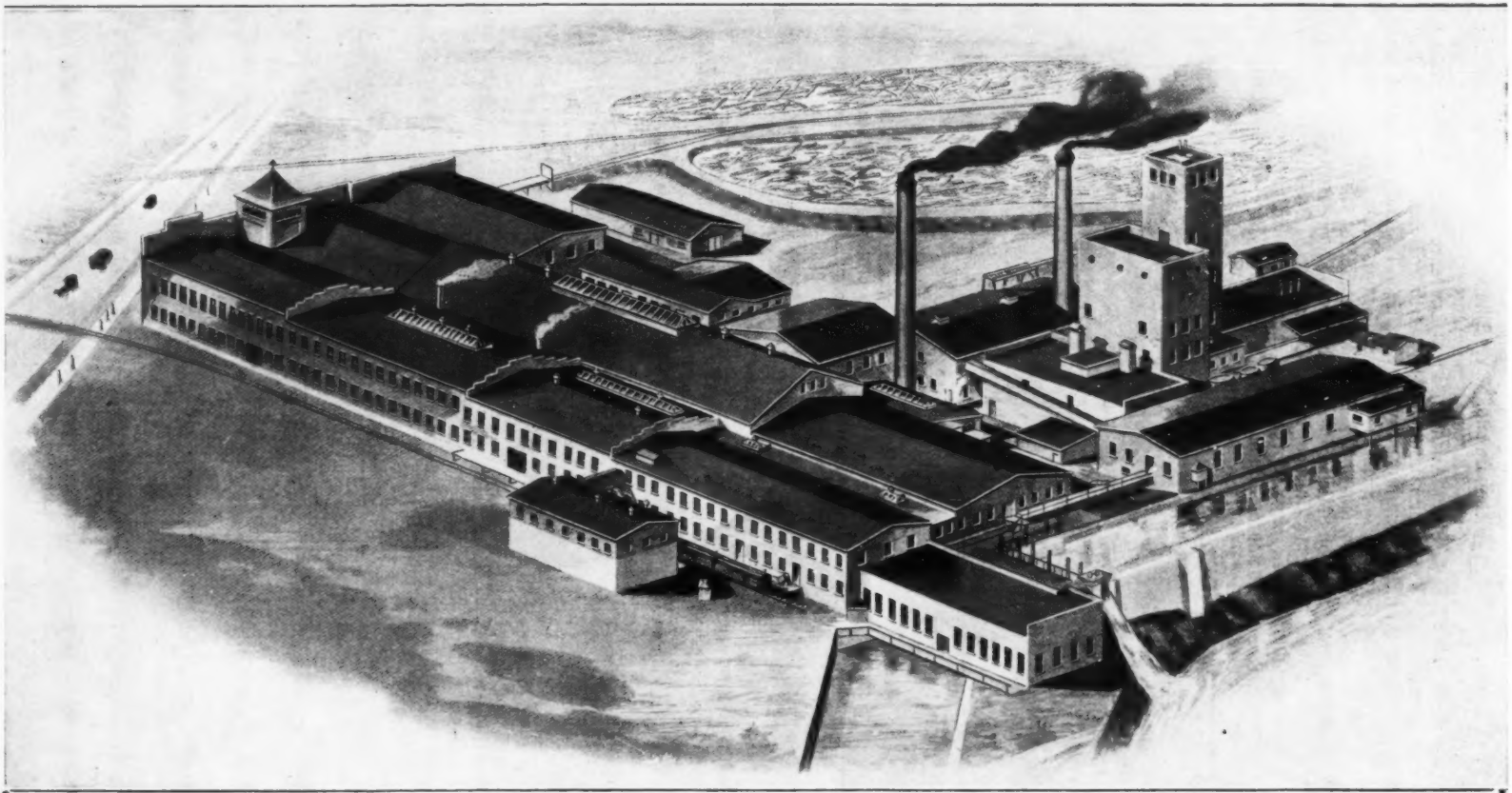
It should be the bulwark on whose support and loyalty you can depend. We have before us problems for adjustment, not only among ourselves, but with the mills, from whom we buy our various commodities.

All of this should be done with absolute fairness, but with firmness of purpose, being ever mindful of justice to each other and respect for the law.

THOMAS F. SMITH, PRESIDENT.

We have and always will have in our midst those who build on sand and who will not build on the broad structural foundation of co-operation and play the game fair.

In the main, I believe our members have imbibed of that



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impelling driving force which has no rebound, and which means absolute success.

Whatever may have been our omissions or commissions in the past, let us now lay our plans for the future.

I wish now to express a few thoughts, and so they may not be read and forgotten, I suggest that should any of them appeal to you as being worthy of further consideration, please make a memorandum and bring them up for discussion at this meeting, otherwise we may have to wait another year for results.

First of all, it is a great honor to become an officer of this great association, and it is also an honor to be appointed on any committee. When we have accepted such an honor, we should do so feeling keenly the responsibility placed upon us, and should contribute cheerfully our time and thought, knowing that others will make the same sacrifice for us.

The basis of success is good fellowship, confidence and co-operation. Good fellowship we have attained. Confidence is nearly across our threshold. Co-operation is before us and is now the subject for discussion.

Your officers, directors, committeemen and secretary must necessarily be the working force of the association, but they are as helpless as a battleship without steam unless they have behind them the loyal, enthusiastic and propelling force of the entire association.

We cannot successfully perfect our organization and carry out our plans unless we have frequent meetings. I, therefore, recommend that the directors and executive committees meet at least three times each year, and that the standing committees meet, at least, twice a year. In addition, I suggest that immediate steps be taken to bring about more cordial relations between the mills and the jobbers, and to this end recommend that negotiation with the mills be immediately commenced for the purpose of having them appoint a committee from each division of their industry, to meet at stated intervals a similar committee representing the paper jobbers.

I am convinced that such a plan would be the means of not only creating a better feeling, but would practically eliminate many of the unpleasant and unprofitable controversies which so frequently arise through sheer misunderstanding of each other's motives.

I also recommend that we compile such statistics as are necessary and of vital interest to our association and that such statistics be distributed among our members.

I further recommend that we establish a credit bureau through which bad acounts may be collected, in addition to the usual functions of such a bureau.

We should study carefully trade conditions and abuses and should compile a complete list of trade customs.

With your support and sincere co-operation, these and many more problems may be considered and successfully concluded.

I also feel it my duty to lay before you for analysis a few unfavorable creations and annoying features emanating from the mills.

In the premises, let me say that any unjust practices, customs or legislations engaged in either by the mills or by the jobbers for their own immediate gain and which totally disregards the interest of the other, should be looked upon as shortsighted, unfair and not to be tolerated, as the interests of each are so closely allied that the injury of one would ultimately prove the failure of the other.

I hope that our convincing arguments will enlighten them so that they may see the unreasonableness of some of their methods and arbitrary position they assume.

There is a trade custom adopted by the Writing Paper Manufacturers' Association known as "Trade Custom No. 16," which is as follows: "Members shall not sell private watermarks and brands for less than they sell the mill marks and brands of the same grade."

In the first place, I doubt the legality of such a restriction, but aside from the legality, the underlying purpose is unsound, unwise and selfish to the core, unless it be proven and acknowledged that the paper jobber should not exist, in which case every mill would automatically become jobber as well as a manufacturer.

As a matter of fact, the paper jobber is an absolute necessity to economic distribution, and consequently should not everlastingly be harassed and required to fight for justice from the mills whom they support.

We are just like the chickens which the farmers raise, to fatten and eat and then raise some more; possibly a better illustration would be the goose. Now, then, you all know the time, money and energy spent in establishing our brands, which remain our property and become a big asset to our business. The mills do not spend a cent in developing our brands, although they share our profits, for they make the paper for us. On the other hand, the mill, in order to make their own brands valuable to themselves, spend thousands of dollars in samples and advertising, all of which is added to the selling price of the brands; therefore, a mill brand actually costs more than a jobber's brand in the same grade; then why should we pay the fiddler. They are simply building up their assets and destroying ours, for at their good pleasure they can declare us no longer their agents, and leave us nothing but sad memories of shattered hopes.

W. C. Ridgway, Secretary.

One of the most serious examples of absence of mental balance and fair play is that everlasting burning question of direct selling. It is so old and time-worn that I hesitate to approach it. It is nevertheless such an uncompromising breach of business etiquette and unfairness that I feel it my duty to strongly urge this association to use its influence individually and collectively to discourage and eliminate such unnecessary and unfriendly practice by some of the mills. It is unfair to us as distributors and furthermore it is unfair to the vast majority of printers who have to compete with those buying direct, and, after all, who is the gainer, for there is no more paper used by such a process.

I sincerely hope that you gentlemen will think this over and not only condemn the practice in your own minds, but try and offer some suggestion which will overcome this growing evil.

It has been said that there are no good Indians except dead Indians, but I know this not to be true when applied to the mills, for I personally know a number of broadminded, far-seeing and very successful paper manufacturers whose straightforward business methods have won for them the respect, confidence and patronage of the jobbing trade.

Your business is what you make it, so shall the greatness of our organizations be. We have all been given certain mental and

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physical powers, why not press them into service for our public good. Don't stop to criticize lest you lose your place in the procession, but do as Sergeant O'Leary, who after winning the Victoria Cross, said in a recruiting speech at Trafalgar Square, "All I ask of you fellows fit to serve is this: Don't stand looking at me and cheering me. That's no good; come and join me." (Applause.)

Now, gentlemen, some of the ideas I have advanced there have already been taken up, and my speech is in that respect a back number, but I did not know that when I wrote the speech.

The next order of business is, gentlemen, the report of the secretary.

Secretary Ridgway: At the last annual meeting a radical change was made in the by-laws of the association which provided for the division of the association into a fine and a coarse paper division. The Coarse Paper Division held its separate meeting yesterday afternoon and the Fine Paper Division this morning. Questions pertaining exclusively to the respective lines were discussed and disposed of at these meetings and this meeting has jurisdiction only over affairs pertaining to both classes of paper.

Speaking generally, the new by-laws have proved adequate for the purpose for which they were designed, but the year's experience has disclosed weaknesses in one or two details. A special committee will later present a report recommending amendments covering these points.

At the full meeting of the Board of Directors the Middle States Wrapping Paper Association was elected to membership in the Coarse Paper Division. With this addition the Coarse Paper Division is quite thoroughly representative of the Wrapping Paper industry in the territory east of the Mississippi River. This association has a total membership of 52, of this number 17 are members of the Central States Paper Dealers' Association and therefore already affiliated with the national body.

The following is a comparative table showing the individual membership of the constituent associations:

	1917.	1916.
Paper Association of New York City	63	58 5
Middle States Wrapping Paper Association	35	.. 35
Empire State Paper Association	20	17 3
Central States Paper Dealers' Association	30	27 3
New England Paper Jobbers' Association	31	31 ..
Northwestern Paper Dealers' Association	11	9 2
Baltimore and Southern Paper Trade Association	29	26 3
Gulf States Paper Association	6	8 3
Paper Trade Association of Philadelphia	19	18 1
Pacific States Paper Association	11	11 ..
Western Paper Dealers' Association	31	29 2
	286	235

At the October meeting of the board of directors, a special committee was appointed to consider the question of extending the scope of the secretary's office. This committee will also present a report on this meeting recommending changes which will necessitate an increase in the assessment for dues which have been levied in the past. It is reasonable to presume that this action will be the cause of a few resignations, consequently during the coming year the constituent associations should conduct active campaigns for an increase in membership. It is conservative to state that in the territory covered by each constituent association there are from five to twenty jobbing houses which are eligible to membership. The most approved and successful method of enlisting new members is by personal solicitation of a committee composed of at least three members. This method has been tried out by numerous organizations and wherever possible should be followed by the local associations. The recommendation is urgently made that each organization, after having made a careful survey of their territory and determined just what jobbing houses would make desirable members, assign the committee of three these houses for personal opinion. The prediction is here made that such a campaign should add at least fifty to each individual membership. The secretary's office would of course co-operate with the local associations.

The Chairman: Mr. Ridgway will take up other matters, and also the report of the directors.

Secretary Ridgway: At the October meeting of the board of directors the question as to the situation in Europe respecting an accumulation of paper or paper making materials in the countries of Europe came up for discussion, and the secretary was instructed to communicate with Secretary Redfield, of the Department of Commerce, for the purpose of finding out whether his department could furnish us with any information of that character. We found him most willing to co-operate. He stated that he had no information that was up to date, but he would at once start the machinery of his department going in order. I have here three reports from United States consuls at various points in Europe. We are expecting more from time to time as they come in, and they will be given publicity in the Bulletin. These three we thought it might be well to read at the present time.

The first is by the consul-general at London, under date of December 13.

No stocks of wood pulp for paper making are being accumulated in the United Kingdom. Pulp of all grades is being consumed as fast as received, and at the present moment the best grade sells for a higher price than the best grades of rags. The best pulp is being taken at £47. 10. 0. (231.16) per ton of 2,240 pounds c. i. f. London, while the best cotton rags may be had for under £40. (194.66) per ton.

Many paper manufacturers who formerly used pulp, are now using rags (cotton cuttings), and for that reason, though such rags are not being imported, no excess stocks are accumulating. The British Government will grant export permits for 50 per cent. of the amount of old cotton rags, commonly called "roofing stock," formerly shipped abroad, but the remaining 50 per cent. is used by local manufacturers of roofing or remains uncollected and is destroyed. The same applies to old manila rope, for which export licenses up to 50 per cent. of the quantities shipped previous to the war may be obtained.

As rags cannot be shipped to the United States, with which country a large trade was formerly enjoyed, quantities are not even being collected and this stock is lost.

It may therefore be said that there are no unusual accumulations of wood pulp, rags or paper stock of any descripption in the United Kingdom.

The second is dated Copenhagen, Denmark, December 22.

I have the honor to acknowledge the receipt of the department's instruction dated November 22, 1916 (165.165-2), enclosing a copy of a letter of November 16, 1916, from the acting secretary of commerce, in forming the department of the increasing interest manifested by American manufacturers in the paper situation in Europe, particularly with regard to the supply of paper-making materials that is being accumulated in paper-making countries.

I note that it is desired that I submit a report upon this subject.

In this regard I wish to state that Denmark is not what would be called a paper-making country. Only a few small mills exist and their output is not sufficient to supply even Denmark. Most all the paper used in the Kingdom is imported. There is no supply of paper-making materials, such as pulp and rags, being accumulated. The supply of materials I am informed is only normal. Official figures are impossible to obtain, as the government has published no general statistical information for 2½ years. Denmark is no factor in the paper-making industry.

I have the honor to be, Sir,

Your obedient servant,

E. D. Winslow,
Consul-General.

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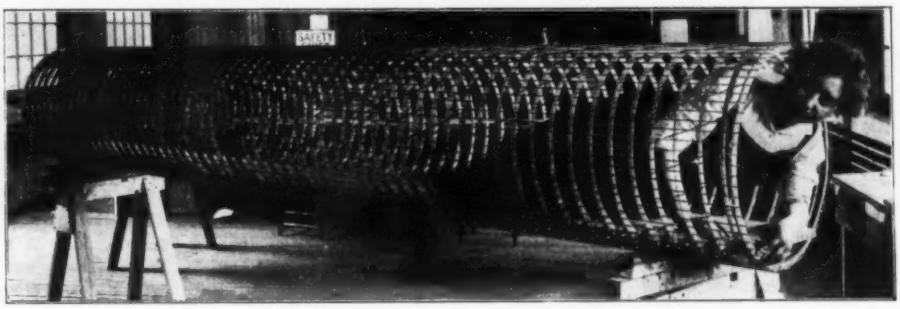

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The third is from the American vice-consul at Brussels.

On account of the war the supply of paper-making material in Belgium is very small. There is almost no wood pulp, as communication with Sweden and Norway from which countries most of the wood pulp comes is most difficult.

There is no stock of rags which is accumulating.

The real situation as to the supply of paper-making materials on hand is best shown by the fact that old paper now sells at 60 centimes (12 cents) per kilo (2.2 lbs.) to 75 centimes (15 cents) per kilo (2.2 lbs.), at which price new printing paper was sold before the war.

New printing paper now sells as high as 2 francs (39 cents) per kilo (2.2 lbs.).

I am informed by a person in the trade that there will be a great demand especially for printing paper and other kinds of paper in Belgium as soon as the war is over, when there will be a good opportunity for American manufacturers to do business.

CHARLES ROY NASMITH.
American Vice-Consul in Charge.

Secretary Ridgway: The board recommended that this association go on record in favor of what is known as the Webb bill. I think you are all familiar with that. It provides for the cooperation of manufacturers and dealers in this country in the matter of their export business. The question involved, of course, is one as to whether they should be allowed to combine for export business where they are not allowed to combine for domestic business. This request comes from the Merchants' Association of New York City, that we support the Webb bill.

(On motion, the bill was endorsed.)

Secretary Ridgway: At the October meeting of the board of directors a special committee was appointed to go carefully over our by-laws which has been adopted at the last annual meeting, and if in need of revision make the necessary suggestions. That committee reported to the board of directors on Monday, and the board now recommends the following changes in our present by-laws.

The present Section 1 of Article V reads as follows: "The elective officers of the association shall be a president, a vice-president of the fine paper division; a vice-president of the coarse paper division, and a treasurer, who shall be nominated by the board of directors and elected by the association to serve through the next annual meeting or until their successors are elected and installed."

Your committee recommends that the word "who" be omitted after the word "treasurer," and the words "all of whom" be substituted in their stead.

The Chairman: Gentlemen, if you have any objection to these by-laws as Mr. Ridgway reads them, please state them.

Secretary Ridgway: They also recommend the insertion of the words in this section of "vice-president in charge of the fine paper division" in stead of "vice-president of the fine paper division," in order to have it a little more clear that that particular vice-president is in charge of that division and is not really a vice-president as far as that division itself is concerned.

They recommend the amendment of Section 2 of this same Article, so that it shall read as follows:

"The president shall preside at all meetings of the association and of the board of directors; he shall be a member ex-officio of the Executive Committee, hereinafter provided for, and shall perform such other duties as are usual for such an officer."

That is the original section; they add to that: "He shall call at least two meetings of the board of directors during the year."

In other words, makes it mandatory to have at least two meetings of the Board of Directors.

Section 3 of the same Article shall be changed to read as follows:

"The Vice-President in charge of the Fine Paper Division shall preside at all meetings of that division and of its Executive Committee, and in the absence or temporary disability of the President, perform his duties."

This is new: "He may call meetings of the Executive Committee of that division at such times and places as he may designate." The rest is the same as the original section except the words "in charge of" are added.

Section 4 of Article V is changed to read:

"The Vice-President in charge of the Coarse Paper Division shall preside at all meetings of that division and of its Executive Committee. He may call meetings of the Executive Committee of that division at such time and place as he shall designate."

Section 5 is a new section entirely. It reads as follows:

"In case of the disability or absence of the Vice-President in charge of either division, the president shall appoint a vice-president from the Executive Committee of that division to act during such absence or disability."

They recommend the renumbering of Sections 5 and 6 of Article V to 6 and 7, just to make the numbering come right.

Section 1 of Article VI, the word "organizations" in two places to be omitted, and in each place the words "an organization" to be substituted, simply in the interest of better English.

Article VI, Section 4, now reading: "The Board of Directors shall meet upon the call of the president at such times and places as he may designate. A majority of the board shall constitute a quorum." To be changed, the last sentence to read:

"Ten members of the board shall constitute a quorum."

The feeling was that as the board enlarged it might be more difficult to get a clear majority of the board together, but that it was perfectly safe to go ahead with ten.

Article VIII, Section 2, is new, as follows:

"Special meetings of the Association may be called by the Board of Directors."

Article VIII, Section 2 old, to be renumbered Section 3.

Article XI, referring to committees, to be omitted entirely. That is the article that provides for the standing committees of the various divisions of the Association itself, and the method of organization of those committees. The board felt that these committees were not really constructive in their work; that these meetings which were held prior to the annual meeting were usually attended by one or two or three or four, and that this work could better be referred to special committees from time to time as the occasion required. They recommend the omission of that article entirely.

They recommend the addition of a new Article XI, to be entitled

"ADVISORY COUNCIL.

"Ex-presidents of this Association shall be members of an Advisory Council without voting power whose duty and privilege it shall be to attend all meetings of the Board of Directors and of the Executive Committees."

All of which is respectfully submitted.

THE CHAIRMAN: The next will be the report of the Statistics Committee.

Secretary Ridgway read the following report:

Your committee has carefully gone into the feasibility of gathering statistics that would benefit the trade, having secured copies of the very complete blanks used by the Writing Paper Manufacturers' Association and consulted with their secretary, as well as the secretary of the Book Paper Manufacturers' Association as to their methods of gathering their own statistics. The two organizations have very thorough systems for securing the information desired, which we could well follow in many respects.

Your committee would recommend that the Association's secretary, Mr. Ridgway, be authorized in conjunction with a committee to prepare printed blanks for the purpose of securing from each member the amount of tonnage purchased weekly from the mills, dividing the tonnage into book, cover, and writing papers, in

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such sub-divisions as are deemed best. These reports to be sent to the secretary, and not to be divulged by him to any one, but to be kept absolutely inviolate. As soon as received by the secretary, to be immediately collated and a report of the total tonnage sent to each contributor.

It is believed that after the lapse of several months these statistics will enable the individual concerns, by comparison, to judge the trend of not only their own business but that of the whole country. It is thought that in co-operation with the Manufacturers' Association statistics can be interchanged that will inure to the benefit of the whole trade.

THE CHAIRMAN: Gentlemen, in regard to this report the committee intends to work out a plan by which all of us can carry out the requirements of this report without any great work on our part. In other words, they propose to furnish you with charts and blanks so that you can put that into execution.

MR. HOLDEN: I would like to make a motion that that be included.

The motion prevailed.

SECRETARY RIDGWAY: Report of the General Credit Committee.

Your committee on credits suggests the recommendation of the following terms, which but slightly modify the terms recommended by this Association in a previous year.

FOR FINE PAPERS.

Three per cent ten days from date of invoice.
Two per cent eleven to thirty days from note of invoice.
Net 31 days from date of invoice.
Interest to be charged on accounts not paid at maturity.

FOR COARSE PAPERS.

Two per cent ten days from date of invoice.
Net thirty days from date of invoice.
Interest to be charged on accounts not paid at maturity.

It is suggested that these terms be recommended to local associations. Each association to distribute printed forms for distribution by its members.

Respectfully submitted,
GENERAL CREDIT COMMITTEE,
Geo. T. Smith, Chairman.

On motion report was adopted.

General Business. The next thing then will be the election of officers. Before we come to that I want to say to you that we have with us a gentleman who has come many miles to visit us. We certainly appreciate any one who will come thousands of miles to be in our midst. Mr. Bonestel from California, we would like to have you say a few words to us. (Applause.)

MR. BONESTEL: Mr. Chairman and Gentlemen. I feel deeply appreciative of this opportunity, and I would like to offer a resolution. In doing so I am convinced that the resolution which I propose to offer will meet with your approval. We are busily engaged all of us about our affairs. Business these days is a trying circumstance and experience, and it requires our best thought and our best efforts. But, gentlemen, we have a higher duty even than our business. We have a higher duty even than the duty to our families. It would appear from the fact that our surroundings are the normal surroundings, that the sky seems the same as it always has, that in going about the streets we see the people walking along engaged in their normal occupations, in comfort; most of them in happiness, and in pursuit of pleasure, but the fact is, gentlemen, that within the last very few days a material change has taken place. Our country is not in the same condition and attitude toward the rest of the world that it was a few days ago, and I think you will agree with me that it is entirely proper that a meeting of representative men throughout the country such as this is should make note of that fact and put itself on record that they do carry that thought in their minds. The men at the head of our Government, gentlemen, are deeply concerned about a condition perhaps as important as anything affecting our country that has taken place within a half a century, and I would like to move that a resolution be passed at this meeting before we adjourn that we as American citizens, as citizens of this United States, hold ourselves now and will at all times hold ourselves in readiness to do those things and make those sacrifices which may be necessary for the benefit of this our country. (Great applause.)

The audience here rose to their feet and cheered.

MR. JOHN LESLIE: Gentlemen, our chairman introduced to you two very welcome gentlemen from across the line in Canada. In talking with these gentlemen I have learned that they have had somwhat similar experiences up to date to our own with reference to the organization of association work. Most of us live in the present and forget the past. We are looking to the future. But it is a great thing for us once in a while in affairs of this kind to see what the past has accomplished. Now I want to suggest that the dean of the meeting, Mr. James Richard Carter, make a little talk about this association and what it has done for the trade. Not for only our own trade, but for the Typothetæ, the printer, the consumer, the benefits that we have attained and given to others, in order that these gentlemen from Canada may take home an idea that will enable them to organize in Canada on similar lines. (Applause.)

MR. JAMES RICHARD CARTER: Mr. Chairman and Gentlemen. I call that putting it over on the so-called dean when the silver-tongued orator from Minneapolis comes to Beantown and asks for a speech from there. I wish to add my voice to all the others in welcoming our guests from Canada, and I hope they will begin by starting out, for we understand that imitation is the sincerest flattery. I hope they will go back to Canada and build up an organization smilar to this.

As long as they call me the dean, I will say that 46 years ago, a kid as green as grass, I started to form the firm of Carter, Isinglass & Company, so that the name may stick to me. But going away back 40 years I can remember starting in business work in Boston, we hardly knew each other by sight—the dealers. If we did pass on the street we were so afraid some one would absorb something valuable we would always pass by on the other side of the street. I have had experience in the local organization and in organizations outside of the paper trade. It has been my fortune for some years to be president of two of our largest business organizations, and I have been for some years a firm believer in organizations. We are realizing today throughout all the business that to successfully carry it on we must be organized. We certainly in this body have accomplished a great deal. If we don't act together why then we fall solitary victims before those who are better organized than we are, and I think we have an example of what this organization has accomplished, where we were able to stand up to the manufacturers and insist that our rights should be respected, and it does not mean antagonism, because the manufacturers were organized earlier than we were, and felt the power of it and they don't feel it is antagonism and we don't feel it is antagonism any time to meet and discuss on equal terms some vital questions between us. There is more antagonism when one side is very weak and the other strong. Between two strong organizations there is always mutual respect. So I hope our guests from Canada will go back and if they have not an organization like this will feel the value of it. And furthermore our good friends on that side of the line were helped, so that where they used to send only 50 tons a day they now send 1,000. So I think questions will arise which will be very valuable if we have a good strong organization on both sides of the line to discuss these questions.

Now I am on my feet I hope I shall be excused for speaking to a question of personal privilege. I was glad to have our friend

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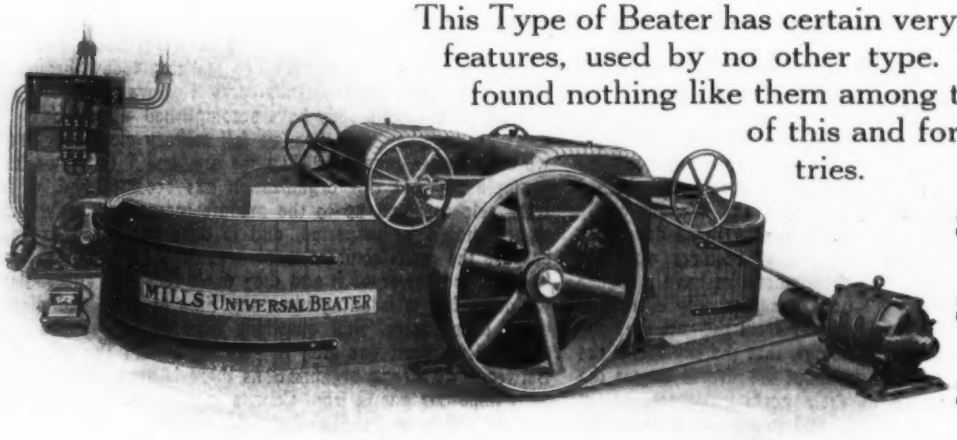

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Mr. Bonestel called on from the Pacific Coast, and he certainly made us a splendid speech, but I was hurt when you gave such a welcome to Bonestel, a young man, when an old gray-headed man like me hustled from Denver to get here. I was 48 hours and two nights in the sleeper, and we had neither gas nor electric lights or water, and I feel hurt that I should have been so slighted. (Applause.)

THE CHAIRMAN: Gentlemen, Mr. Carter knows how we feel towards him. He knows this meeting could not have gotten along without him, and that is why he had to come. (Applause.)

The next order of business, gentlemen, is the report of the directors for nominations:

SECRETARY RIDGWAY: The Board of Directors, pursuant to the authority in the By-Laws, nominate the following officers for the ensuing year:

Thomas F. Smith, president; George Olmsted, vice-president in charge of the Fine Paper Division; Harvey E. Platt, vice-president in charge of the Coarse Paper Division; R. P. Andrews, treasurer.

These were elected.

THE CHAIRMAN: Gentlemen, you have heard me talk enough today and all I can say is I thank you very much indeed for this renewed honor and I assure you I shall do all in my power to follow your advice.

MR. ADDOMS: Before we adjourn I think the association ought to pass a vote of thanks to the officers and directors and committeemen who have done all this work.

The motion prevailed.

MR. ANDREWS: I move that the resolution offered by Mr. Bonestel, and carried unanimously here, be forwarded to the President of the United States by telegram.

MR. JOHN LESLIE: I move that a committee be appointed by the chair to draw up a suitable resolution on the line of Mr. Bonestel's motion, and that that committee be authorized to send this, as stated by Mr. Andrews, to the President.

MR. ANDREWS: I will accept that as my motion.

The motion prevailed.

THE CHAIRMAN: I appoint Mr. Bonestel, Mr. Leslie and Mr. Andrews. (Applause.)

On motion the meeting adjourned.

IMPROVEMENT AT HAWTHORNE AND KALAMAZOO MILLS

Written for the Annual Number of the Paper Trade Journal

Among the important additions made to the paper producing industry in Kalamazoo, Mich., during the past year must be mentioned those undertaken by the Hawthorne Paper Company and the Kalamazoo Paper Company. The first named concern has doubled its capacity for the manufacture of the highest grades of bonds and ledger papers, while the latter is rushing work on an up-to-date coating plant, that will be a model of its type when ready for operation.

Hawthorne Co. Spends $200,000

The Hawthorne Paper Company has expended upwards of $200,000 in betterments, and is now able to produce 24,000 pounds of high grade linen papers every 24 hours. An 87-inch Fourdrinier machine, built by the Rice, Barton & Fales Machine and Iron Works, has been installed in the machine room. This is operated by a variable speed engine, direct connected.

The beater room was enlarged by a 125-foot addition and seven new beating and washing engines installed. They are all copper lined and equipped with copper pipes and the best product of J. H. Horne Sons and Co. The finishing room has been doubled and considerable new machinery is being installed. The addition to the stock house is 80 by 100 feet in dimensions, four stories high. The upper floor is used to increase the loft drying area. Sixteen drainers have been added, the mill now having 32 drainers in all.

The power plant has been increased by the addition of a 1,500 horsepower engine, while two new boilers give the mill a battery of five boilers in the boiler house.

The mill secures its water supply from three new wells each 110 feet deep and with a combined daily capacity of 4,000,000 gallons.

New offices are being fitted up for the company. When these are occupied the present office space will be used to provide a comfortable rest and retiring room for the women employes. It will be equipped with all necessary sanitary conveniences.

Change Course of Kalamazoo River

The site for the new coating mill for the Kalamazoo Paper Company was made available by changing the course of the Kalamazoo river. When this was done there was ample room for the big structure, in addition to straightening out a bad S curve that always caused trouble in the flood periods of the year.

The coating mill is built of brick, with steel girders and concrete floors. It is practically fireproof. The stock room is 108 by 250 feet in dimensions and equipped with monorail carriers. The coating room is the same size and conveniently accommodates four 54-inch and two 64-inch Walden coaters. They are powerfully built machines and will permit of extreme speed in operation.

Color Room Three Stories High

The color room is three stories high, all others being but a single story. This apartment is 145 feet long and has an average width of 63 feet. The gravity system of mixing colors is employed. The process begins on the top floor where there are seven agitating tanks. On the second floor there are four of these tanks. The clay pit is in this department and has a capacity of 2,500 tons. Cars for unloading can be run directly into the color room.

The finishing room is 108½ by 300 feet in dimensions. There are three stacks of super calendars, one 68-inch and two 60-inch, the product of the Holyoke Machine Company. Two Hamblett cutters, equipped with layboys are ordered, as well as two Jones & Smith under cuts, one 56-inch the other 84-inch. All the machinery will be electrically driven, the calendars being direct connected to individual motors. Roy J. Klose, of Kalamazoo, has the contract for the electrical equipment. Steel tables will be placed in the finishing room to facilitate the handling of the paper. All the piping and sprinkling system was installed by the Kalamazoo Paper Company under the direction of its own officials. The bricklaying was done by the F. Schumaker Company.

P. F. Denner General Superintendent

P. F. Denner will be general superintendent of the new plant. Though a former resident of Kalamazoo he came to his present position from the Consolidated Lithograph Company, Montreal. He has also had responsible positions with other large coating plants in the East.

Power for the coating plant will be provided from a new turbine engine. A building is now being erected to accommodate this equipment. It will be a thousand k.w. unit of the bleeder type and the product of the General Electric Company. It is so installed as not to require any addition to the mill's boiler capacity, while it increases the total mill power capacity to above 4,300 horse.

JAMES J. FORSYTHE, Pres. A. N. FORSYTHE, Vice-Pres.
JAMES H. COY, Secy.-Treas.

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TO CONSOLIDATE INTERNATIONAL INDEBTEDNESS

A comprehensive plan for consolidating the indebtedness of the International Paper Company under one mortgage, for the liquidation and discharge of the accumulated dividends upon its preferred stock, for taking care of all bond indebtedness maturing during 1918 and 1919 and for providing for future capital requirements has been formulated by the directors and approved by a committee consisting of F. N. B. Close, Vice President Bankers Trust Company, New York; Gates W. McGarrah, President Mechanics and Metals National Bank, New York; Samuel McRoberts, Vice President National City Bank, New York; Ogden Mills, Vice President International Paper Company, New York; Rudolf Pagenstecher, director International Paper Company, New York; E. V. R. Thayer, President Merchants National Bank, Boston, Mass., and Albert H. Wiggin, President Chase National Bank, New York.

These gentlemen have been asked by the company and by holders of a large amount of preferred stock to act as a committee to receive deposits of preferred stock under the readjustment plan.

To Deposit Shares With Bankers Trust Company

Holders of preferred stock are asked to immediately deposit their shares with the Bankers Trust Company. The deposit agreement authorizes the committee to vote the deposited stock in favor of the creation of a new first and refunding 5 per cent sinking fund mortgage on the company's properties, under which not more than $20,000,000 thirty-year bonds can be issued. Only $7,500,000 of these bonds are to be issued to the public at this time for the purpose of retiring existing bonds, but an important feature is that the mortgage meets any possible future requirements of the company for development of its properties. The plan also provides for the issue of such amounts of unissued preferred and common shares as may be necessary to make payment required for the adjustment of the deferred dividends. An increase in the preferred stock will be authorized to the amount of 75,000 new shares, to be issued if required for the conversion, at par, of $7,500,000 bonds to be issued under the new mortgage.

Assenting holders of preferred stock are offered in full settlement of all unpaid dividends:

7½ per cent of face value of their holdings in cash.
14 per cent in 6 per cent cumulative preferred stock, and
12 per cent in common stock.

Offer Must Be Accepted Immediately

This offer is made on condition that the proposal shall be accepted forthwith by the holders of a sufficient amount of preferred stock. President Dodge points out that it would not be wise to attempt to liquidate the accumulated dividends in cash, but that under the proposed plan, the equity of the stock in the valuable properties which the company owns will be increased. The directors intend using a substantial part of the earnings for 1916 and 1917 for the retirement of the company's bonded debt. In this way the company's financial position will be fortified to meet any future conditions. Because of the greater efficiency and earning capacity shown by the company under the policy followed during the past decade, and owing to the reduction in debt, it entertains no doubt that earnings will, after this, be sufficient to justify the continuous payment of the 6 per cent dividend on the company's preferred shares, and to provide within a reasonable time for a proper return upon the common stock.

Unpaid dividends upon the $22,406,700 cumulative preferred stock amount to 33½ per cent, or $7,506,214.50. During the past nine years, when the full 6 per cent on the preferred shares has not been paid, the company expended $24,848,000—an amount in excess of the total outstanding preferred stock—for repairs, maintenance, floating debt and retirement of the bonds. The largest contribution in this list, $12,300,000, for repairs, maintenance and betterments, was charged to earnings. The company has now no floating debt whatever and it is believed that earnings for 1916, after allowing for charges and depreciation, will reach $4,500,000.

Unissued Stock for Dividend Adjustment

The company has all ready to meet the adjustment of dividends a sufficient amount of unissued stock to avoid the necessity of any increase in the preferred stock or common stock beyond the 250,000 shares of preferred and 200,000 shares of common permitted by the charter.

Holders of the old bonds will be allowed a cash commission of 1½ per cent when taking the new bonds. Only the first $7,500,000 of the bonds issued under the new mortgage will, for a period of five years, carry the conversion privilege. Under the plan, $727,000 of the bonds will be reserved for refunding or retiring two small issues which mature in 1919. The sum of $8,373,000 will be reserved under careful restrictions to provide for extension to plants, new property, improvements and construction from time to time.

When the readjustment is effected the new mortgage will be a first lien upon the plants and properties of the company. The company's timber lands in this country and in Canada, including upwards of 4,000,000 acres of fee and leased lands, will be covered by this lien through the pledge with the trustee of the stocks of companies holding title to this property. These properties thus covered are virtually unencumbered except for two small liens aggregating less than $350,000.

No Underwriting Agreement

This readjustment of the company's finances involves no underwriting agreement and therefore no payment to bankers for the usual underwriters' commissions. The company has introduced many economies and labor-saving devices which have brought the plants to a high state of efficiency.

All holders of the company's securities will, it is said, benefit by this readjustment. It will bring the common stock nearer a dividend basis by providing for the paying off of the back dividends on the preferred stock. Holders of the preferred shares will obtain the dividends that they have long been waiting for. And the bond holders will be helped by the reduction of the total indebtedness and the strengthening of the company's entire financial position.

MEETING OF WAXED PAPER MEN

A meeting of waxed paper manufacturers was held Monday morning to form a separate association for 1917. The officers elected were J. Kindleberger, of the Kalamazoo Parchment Paper Company, president; W. L. Carter, of the Madina Gummed and Coated Paper Company, vice-president; John Hurlbut, of the Bennington Waxed Paper Company, secretary.

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NEW REX MILL MAKING HISTORY

Written for the Annual Number of the Paper Trade Journal

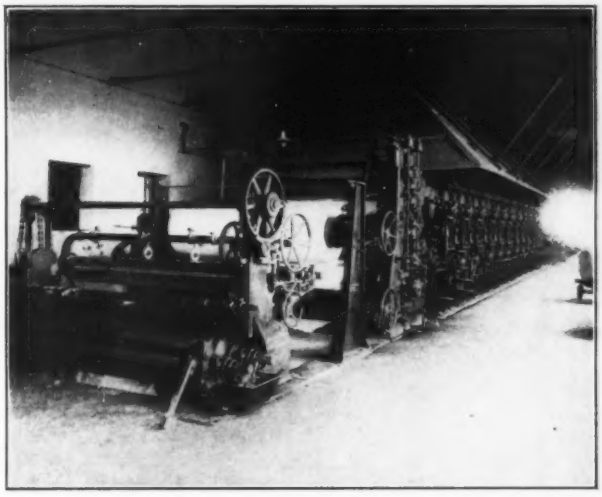
The new Rex paper mill at Kalamazoo, Mich., has been in operation for only a little over six months, but in that short period has proved a veritable gold mine for the stockholders of the Rex Paper Company. Under the capable and efficient general management of John F. King this concern is making history in the Kalamazoo Valley, a district used to stories of big paper mill profits.

The mill is a small one, containing but one machine, manufactured by the Beloit Iron Works and trimming a sheet 112 inches wide. Despite the apparently limited output, the splendid arrangement of the mill and the possibilities for the most economical and efficient production have overcome any deficiency in size.

While the mill was in process of erection Mr. King was asked why he didn't provide for a two-machine plant. He replied: "If I can get all the business that one machine will produce at a profit I will be well pleased."

So far his wish has been amply gratified.

The complete specifications of this plant appeared in the 1916 convention number of the PAPER TRADE JOURNAL. Provisions were made for a six-machine coating plant. This has never been operated to date, the mill being forced to exert every effort to meet the demand for high-grade book papers. The coating machines are being erected, and President King announces that his company will be fully prepared to make this product as soon as the demand warrants it.



MACHINE ROOM IN REX MILL.

NEBRASKA BAG COMPANY CHANGES NAME

Announcement has been made by the Nebraska Paper & Bag Company, of Lincoln, Neb., wholesale stationery and paper house, that it has changed the style of its firm name to the Schwarz Paper Company. This change will not affect the policies of the concern, for its management and stockholders will remain the same. The Schwarz Paper Company has just purchased a new building, more commodious than its present quarters, to allow the proper handling of its growing business. Charles F. Schwarz is president and general manager; George H. Schwarz is vice-president; John H. Schwarz, treasurer, and S. S. English, secretary.

MILL OF THE REX PAPER CO.

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Is the Largest Function of the Kind Ever Held by the Organization—Almost Eight Hundred Diners Filled the Brilliant Banquet Hall—The Menu Was Perfect and the Entertainment From Start to Finish Could Not Be Improved Upon.

The convention of the National Paper Trade Association culminated on Wednesday evening with the largest banquet the organization has ever held. The diners, with their ladies, numbered between seven and eight hundred, and the first gallery of the Banquet Hall was solidly filled with tables.

An Entertaining Program

An ambitious program of music and vaudeville had been arranged by the energetic committee. The audience was an enthusiastic one, and when the musicians struck into "The Star Spangled Banner" and a huge American flag was let down from the ceiling, it rose to its feet and cheered itself hoarse.

The menu was perfect, the entertainment was good from start to finish and every one was in good spirits. The star number on the programme was "the three entertainers," who hit the right spot with songs old and new. During dinner favors were as usual distributed to the ladies.

The banquet was preceded by a reception in the Astor Gallery and was followed after the vaudeville by dancing in the gallery.

THOSE WHO ATTENDED THE BANQUET

A

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Mr. and Mrs. John Adie
Mr. and Mrs. Charles Addoms
Mr. and Mrs. Everett Addoms
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R. P. Alexander
Robt. L. Allison
J. Anderson
John A. Andrew
Jas. Andrews
H. P. Andrews
R. P. Andrews
Fred R. Ayer
P. W. Ayers
Mr. and Mrs. Alex Aitken
Mr. and Mrs. Jas. B. Arther

B

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W. M. Blackford
L. S. Blackman
Howard L. Blake
Mr. and Mrs. Alvin Bodemer
B. F. Bond
B. F. Bond, Jr.
John T. Bonham
Walter D. Bonsall
H. L. Bowes
Mr. and Mrs. Jas. E. Bradley
Mr. and Mrs. John Brannan
W. E. Bromley
Mr. and Mrs. Arthur L. Brown
Neill S. Brown
Walker Brown
L. H. Buckley
John C. Burke
Ed. W. Burke
Mr. and Mrs. Fred T. Burkhardt
Mr. and Mrs. J. R. Burkhardt
M. O. Byrne
T. Barton
Simon Bresler
H. C. Brown
O. Bache-Wiig
Mrs. Baker
E. P. Bagg
Mr. and Mrs. Chas. H. Baldwin
Miss Helen S. Baldwin
C. W. Ballard
Mr. and Mrs. W. T. Bannister
Norman Bardeen
Nicholas J. Barrett
Mr. and Mrs. Richard Bauer
Oliver G. Bauman
Mr. and Mrs. Geo. R. Beach
Mr. and Mrs. Geo. W. Beatty
Wm. H. Beaver
Thos. Beckett
Leonidas Beck
Chas. W. Beers
Geo. W. Becker
Geo. E. Beggs
Ernst R. Behrend
Mark H. Berry
Mr. and Mrs. Ray Bertschy
L. M. Bickford
C. N. Bicknell
Lou Bittner

C

Mr. and Mrs. Angus Cameron
Jas. A. Canfield
Mr. and Mrs. H. Caplin
Mr. and Mrs. J. A. Carpenter
Mr. and Mrs. J. R. Carter
A. P. Carter
W. L. Carter
Miss Evelyn Carter
Mr. and Mrs. H. L. Carter
F. D. Caruthers, Jr.
G. E. Caskie, Jr.
C. W. Chabot
W. G. Chappell
Leo Charles
W. H. Chatfield
Hugh J. Chisholm
John A. Church
Jesse W. Clark
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Chas. Clinton
Victor Cohen
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Mr. and Mrs. Fred'k A. Cole
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Grellet Collins
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E. W. Copelin
A. J. Corning
Chas. F. Corning
C. E. Cortis
Mr. and Mrs. Wm. H. Cortland
J. H. Cowhill,
Jas. H. Coy
Mr. and Mrs. Winthrop M. Crane
P. H. Crounse
Dick Crotteau
C. A. Crocker
Samuel Crocker
W. H. Crow
A. R. Currie
F. B. Cummings
Chas. C. Colbert

D

A. B. Daniels
Rupert Daniels
C. W. Davis
H. C. Davis
Geo. R. Davis
W. O. Day
J. E. Dean
C. Walter Dearden
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ST. MAURICE PAPER MILL CO. IN OPERATION

MONTREAL, Que., February 5, 1917.—The new news print mill of the St. Maurice Pulp and Paper Company at Three Rivers, Quebec, has begun operations, and the first run on one of the two 50-ton units Saturday proved entirely successful. The capacity of the mill will be 100 tons, and the second unit of 50 tons will be ready for operation in about two weeks.

The sulphite mill, which has been built in connection with the news print mill, has been in operation several weeks.

FORT MADISON TO HAVE PAPER MILL

A press report of recent date says a $100,000 paper mill concern will be established in Fort Madison, Ill., within the course of a few months, and negotiations, which have been hanging fire for several weeks, were completed yesterday. The new concern, to be known as the Wardway Paper Mills, will have the financial backing of a great mail order house of Chicago; in fact, it is but an auxiliary plant of the big institution, and will be devoted to manufacturing the necessary wrapping paper, corrugated boxes, roofings, etc., needed by that concern.

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RIVERVIEW COATED PAPER CO. ERECTS MODERN MILL

Specially Written for the Annual Number of the Paper Trade Journal by H. P. Hall

One of the most important enlargements made in the paper industry of Kalamazoo, Mich., is the erection of the new mill for the Riverview Coated Paper Company. The work is now in progress, and it is hoped the mill will be in operation during the early summer months.

To Be of Most Modern Type

The mill will be a large one and of the most modern type. Situated directly east of the big Riverview coating plant, it will have a floor space aggregating 182,000 square feet, large enough to accommodate two machines and auxiliary equipment, though but one unit will be installed at the outset.

To provide a suitable site for this mill, it was necessary to raise the first floor seven feet above ground level, thus doing away with any danger of a flood during the spring high water. The retaining walls are of heavy concrete, while the filling, over 50,000 square yards, was pumped directly from the river by means of a hydraulic pump. The raw stock house and finishing room are of slow burning construction, while the rest of the mill is entirely fireproof. Every section of the plant is equipped with a sprinkler system, fed from a heavy steel tank. The customary basement, dark and gloomy, is entirely eliminated in this mill. The first floor is high, light and airy.

Five-Story Raw Stock House

The raw stock house is five stories high and 60 by 200 feet in dimensions. The sorting and dusting departments are on the top floor and equipped with a complete battery of appliances built by the Norwood Engineering Company. The dusted stock is discharged by gravity into the cookers and from the cookers into especially constructed tanks by gravity, from which tanks it is discharged by agitators and pumps to the washing engines.

The rotary room is three stories, 48 by 104 feet, while the beater room is two stories, 80 by 224 feet. There is a battery of five 2,000 washers and four 1,500-pound beaters, all built by E. D. Jones & Sons Company, Pittsfield, Mass. There are also two majestic jordons.

The machine room, two stories, 80 by 232 feet, will be equipped with a 156-inch Fourdrinier machine, built by Pusey & Jones Company, Wilmington, Del. The machine is equipped with a rope drive and driven by a veritable speed motor. Hawkins & Company, Chicago, are now building an overhead crane for installation in this department.

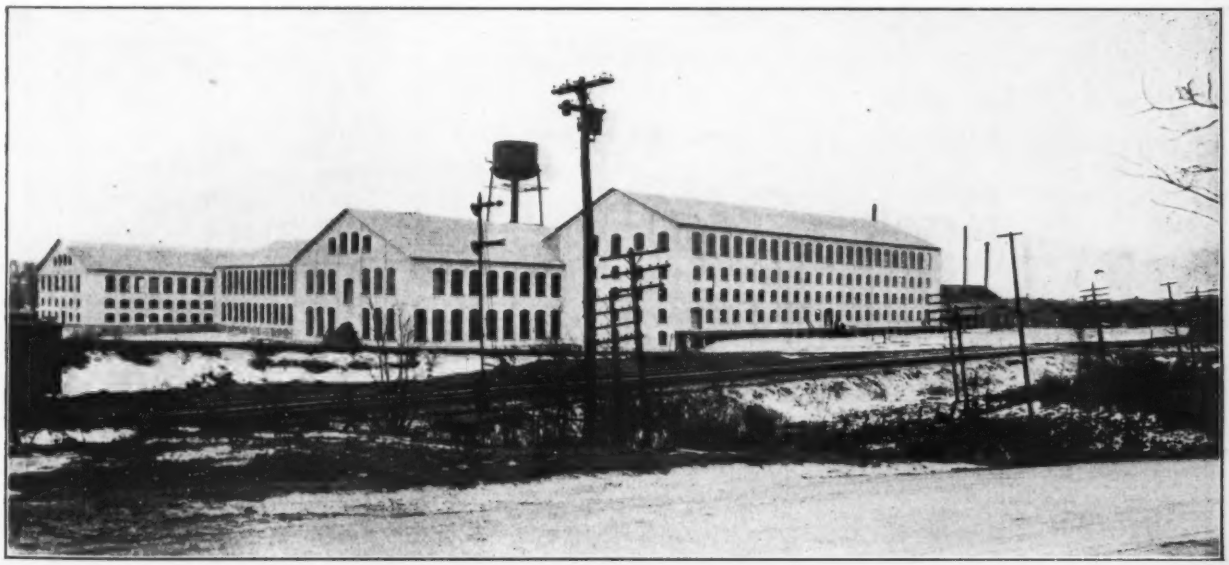
The Finishing Room

The finishing room, three stories, 80 by 200 feet, will be equipped with calenders, press cutters, etc. This machinery has not been ordered as yet.

The turbine room is 48 by 72 feet in dimensions, two stories. There are two 500 k.w. bleeder type turbines, surface condensers and a large switchboard. All are the product of the General Electric Company. The boiler room, 70 by 80 feet, will have a battery of three 300 Wickes vertical water tube boilers. Murphy stokers are equipped with Foster superheaters and Green fuel economizers. Induced draft is made possible by means of a steel stack and a large fan.

The water supply will be taken from a dug well, the daily capacity being about 5,000,000 gallons.

The Riverview mill will be equipped with all the modern appliances for the betterment of its workers. There will be a restaurant, modern toilets, shower baths, rest rooms and a first aid to the injured room.



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PAPER MILL SUPPLY MEN DINE

The ninth annual banquet of the Associated Dealers in Paper Mill Supplies, which was held on the 24th floor of the Hotel McAlpin on Wednesday evening, February 7, will be classed among the banner affairs of convention week. Everything went along swimmingly, and the attendance was far greater than on any other occasion. A notable fact was that an unusually large number of mill men were present.

High-Class Entertainment

The menu was well selected. The vaudeville was, as usual, refined and high class. Every number on the program was well received and applauded. Everybody joined in the chorus of the popular airs, and when the patriotic airs were struck up all stood up and joined in to make the song lively. The good old U. S. A. will certainly have the backing of the association if actions count. All the enjoyment ran high, even the entertainers were entertained. On several occasions bouquets were presented to the leading ladies of the cast by one of the handsome members of the association. During a short period of intermission a prominent member of the A. D. P. M. S. occupied the stage and rendered a song "Way Down South," which was well received. Another notable feature of the affair was that those who occupied the front row and nearest the stage were not all bald heads.

James Pirnie Present

Oh! Yes! James Pirnie, the popular president of the association, was there accompanied by his body-guard Lou, which can be verified by the photograph taken at the banquet, printed elsewhere.

The banquet committee consisted of Robert B. Atterbury, chairman; Frank C. Overton, Daniel M. Hicks, Walter Martens and Fred H. Chase, and they are to be congratulated for their good work. As usual some of those present persisted in talking shop, and a few of the remarks which were overheard by the members present were: "Always in the market," "Market closed," "Oi-Oi-Oi-I hef sech a fine lot of regs vot you shoult see," etc.

The attendance of the 1917 banquet was far in excess of any previous occasions.

This affair will no doubt be spoken of during the coming year as "some banquet."

Among those present at the banquet of the Associated Dealers in Paper Mill Supplies were the following:

Table 1.

Andrew Ragone, W. J. B. Washburn, Horace G. May, J. P. Gaccione, Nich R. Carram, F. H. Gledhill, Main Paper Stock Company; Frank P. La Cava, secretary, Chambers Paper Stock Company; Walter V. Harper, Bogota Paper & Board Company; Nicholas J. Guanglio, Cantasano & Guanglio; Charles H. Mastronardi, Wm. Mastronardi & Co.; Walter Heck, L. F. Heck, Daniel Heck & Co.; T. L. Sullivan, P. Sullivan & Son.

Table 2.

Fred H. Luning, Dave M. Hicks, Sam Houghtalong, A. T. Hicks, E. Salamon, A. Salamon, Inc.; Jacob Siebert, Price & Pierce, Ltd.; Daniel M. Hicks, Daniel M. Hicks, Inc.; L. O. Angevine, Warren Manufacturing Company; Thomas Dudley, Donald A. Walker, James McKelvey, Atterbury & McKelvey, Inc.; Herbert R. Coffin, vice-president, C. H. Dexter & Son, Inc.

Table 3.

W. A. Castle, H. L. Albro, Fred Cherrie, Castle, Gottheil & Overton; C. G. Van Gilder, Harry P. Van Gilder, Diamond Mills Paper Company; J. S. Sensenbrenner, Kimberly Clark Company; M. S. Johnston, Colin Gardner Paper Company; James Pernie, E. Butterworth & Co.; J. B. Kelley; S. George, S. George Co. & George & Sherwood Company; William L. Nixon, Chemical Paper Manufacturing Company; H. R. Woodward, Train, Smith Company.

Table 4.

E. B. Murray, Union Bag and Paper Company; M. T. Hartley, Paul A. Sorg Paper Company; L. Jenning, Edw. Butterworth & Co.

Table 5.

William A. Gray, president, General Paper Goods Manufacturing Company; S. Daniel, general manager, Charles Jacobson, manager, Isador Jacobson, assistant manager, American District Telegraph Company; J. W. Haig, credit manager, Biglowe, Hartford Company; Jas. S. Wemyrs, manager, Rushmore Paper Company.

Table 6.

Harry Pickess; E. H. Forr; Joseph Gatti; J. J. Sullivan, Jr.; D. Galloway, Gatti McQuade Company; Grant Fairbanks, Haverhill Box Board Company; Ellsworth D. Gosling, Gosling & Farr, Inc.; Andrew Muirhead, Columbia Box Board Company.

Table 7.

Walter Clark, Elwin Walker, Alfred Block, L. H. Weiss, R. B. Phlen, Maurice O'Meara Company; David Levy, Alexander Jacobs Company; Walter McGuire, W. McGuire Company; James Cardnaile, P. Cardnaile Company.

Table 8.

Newell J. Leurs, J. E. O'Brien, Pennsylvania Paper Stock Company; Herbert P. Brock, Auer & Twitchell; Sigmond Gross, E. Gross & Co.; Samuel Holstein; J. J. Spirelli; J. L. Shulman; George Wolfe; Harris C. Cohen, Onondaga Trading Company; Ralph Cohen, Syracuse Bag and Burlap Company.

Table 9.

Harry Rosenberg, Milton Eckstein, A. Salamon, Inc.; G. Joseph, L. Rosenbaum, Inc.; Jas. S. Gorther, General Waste Company.

Table 10.

James Flett; Charles Borland, Fort Orange Paper Company; S. C. Costarino, Harry Winkler, Hyman Shulman, P. Costarino & Co.; John F. Holden, John F. Holden Company; William Farren, Evan B. Thomas, Alfred J. Moran, E. B. Thomas & Co., Inc.; R. W. McGarry.

Table 11.

A. H. Searle, George Carriggo, Geo. C. Russell, The Barrett Company; John Palmieri, J. Palmieri & Co.; Gustav Wuerst, United Paperboard Company; Martin Wechsler, Wechsler & Wechsler; Francis Weekes, vice-president, Mechanics Bank.

Table 12.

J. E. Dempsey, J. N. Wallis, C. M. Flynn, Has. H. Callahan, Michael Flynn, Frank J. Collins, John J. Farrell, M. Flynn Company.

Table 13.

W. W. Jenkins, Joseph, J. Whitney, W. Drew Dittmar, Thames River Specialties Company; Joseph Carrizzo, Anthony A. Bronocore, Marcellino Barone, George Carizzo & Co., Inc.; Joseph Stewart, Jr., Mechanics Bank; I. Feinberg, B. Feinberg Sons Company; Morris Feinberg, Boston Paper Board Company.

Table 14.

Henry Atterbury, Howard Atterbury, J. A. Morrano, Atterbury Bros., Inc.; E. T. Gardner, The Colin Gardner Paper Company; Wellington Smith, Smith Paper Company; J. J. Sullivan; I. J. Perry, Coy Paper Company; Wm. J. McGarity, Penn Paper Stock Company; R. M. Taylor, The Hinde & Dauch Paper Company; A. G. Caldwell, Orr Felt & Blanket Company.

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ANNUAL DINNER OF THE ASSOCIATED DEALERS IN PAPER MILL SUPPLIES OF NEW YORK, HELD AT THE HOTEL McALPIN, NEW YORK, WEDNESDAY EVENING, FEBRUARY 7, 1917.

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Table 15.

William Karpen, PAPER TRADE JOURNAL; J. L. Hodgins, *Paper Mill;* Moncure Hope, *Trade News Service;* D. L. Manley, *United States Paper Maker;* R. S. Garraway, *Daily Mill Stock Reporter.*

Table 16.

Vito G. Cantasano, Chas. Cantasano, Jos. J. Cantasano, John T. Godfrey, P. Palmiere, E. R. Holden, Vito G. Cantasano Brothers; John Lacorazza, Wm. Lacorazza Co.; Dr. A. Tarditi.

Table 17.

Jas. R. Dearden, Strathmore Paper Company; Louis Levy, Levy Brothers; E. H. Traffard, G. A. Noeckel, John H. Engelke, Albert Eckert, of Marx Maier & Co.

Table 18.

John V. Garvan, John A. Morse, P. Garvan, Inc; M. Mintzer, Joseph Libman & Co.; Isaac Minsky, Isaac Minsky; Daniel I. Murphy, Daniel I. Murphy; Herman Goldstein, Maurice Goldstein, L. A. Kerngood, R. Goldstein & Son.

Table 19.

William R. Heath, J. Spaulding & Sons Company; G. E. Smith, International Paper Company; Louis F. Darmstadt, J. J. Courtney, Darmstadt, Scott & Courtney; J. A. Graham, Bergen Paper Company; P. Gallipoli, P. Gallipoli Company; William C. Steck, E. Butterworth & Co.; J. R. Wertman, Lester E. Stewart, Peerless Trading Company.

Table 20.

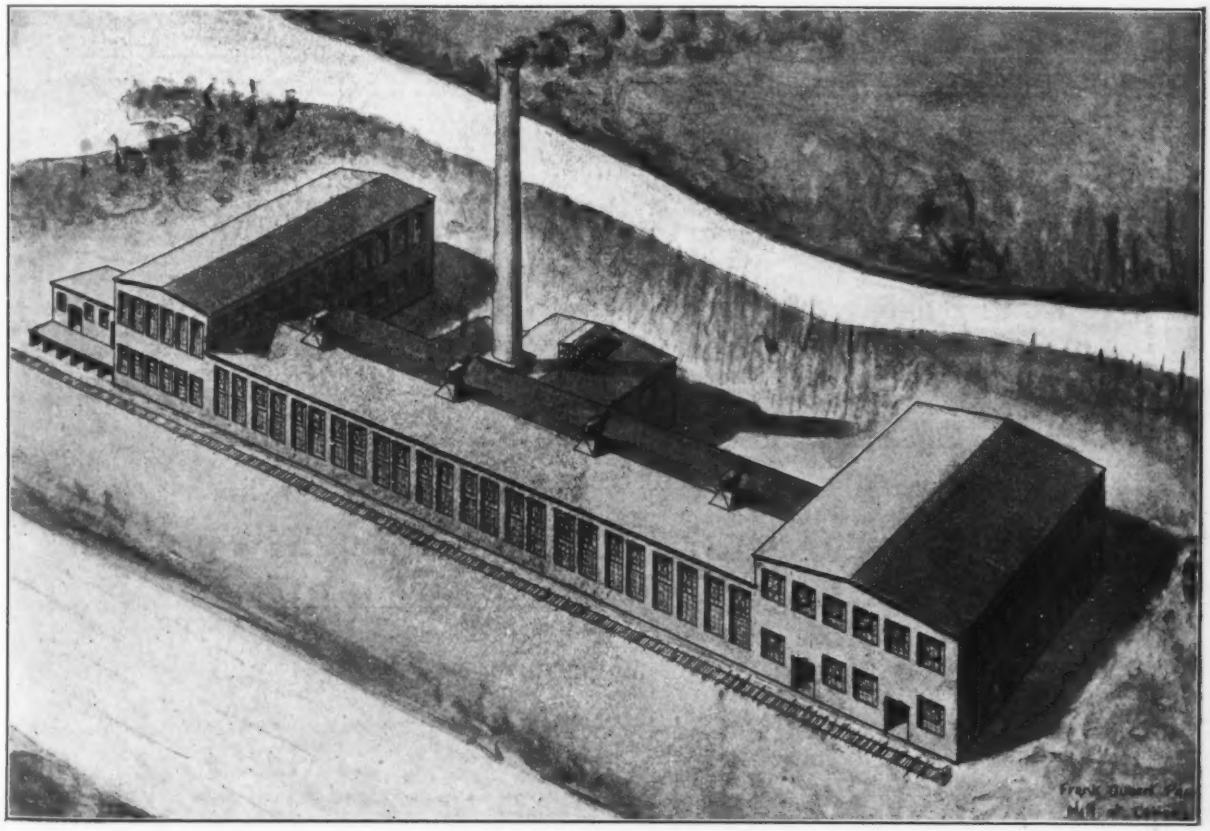
P. Zalinger, Daniel J. Saloman, Louis Marcovitz, Gotham Paper Stock Company; Dave Gaason, Samuel Helfgott, M. Helfgott & Sons; M. Lishansky, H. Feldman, H. Feldman & Co.; Chas. Robinson, D. Robinson & Sons; Jerry Leonardis, A. Leonardis, Louis Leonardis, Peter Leonardis & Sons, Inc.; John Ragonetti, South Brooklyn Paper and Rag Company; Eugene Boggs, I. J. Huie, Waverly Box Board Company; Richard J. Graham, J. J. Graham & Co.

Table 21.

Alfred Donofrio, Nicholas Delia Company; B. Flek, B. Bassin & Co.; A. Donadio, A. Donadio & Co.; T. J. Shanahan, Chas. M. French, Michael Stramiello, M. L. Masson, Frederick H. Chase, Chase & Norton, Inc.; Michael J. Rizzo, A. Rizzo & Son; Louis Babino, Casella Brothers; Peter P. Benedette, D. Benedette; George F. Galgana, Peter Gallipoli.

NEWS PRINT PRICES IN CANADA

While the decision at Ottawa on news print prices is still held up, the mills are filling orders at a rate of 3 cents or over, just what they offered to do at the first. In the case of the smaller publishers who use sheets, more contracts for 1917 are being made on the basis of 4 cents for 2-ton lots, or 4.25 for less, as quoted in the PAPER TRADE JOURNAL price list. These publishers evidently are looking for no government interference but are renewing freely now. The $4.00 rate per cwt. is an advance of practically 70 per cent over the rates of the old contracts, which ran around $2.20 and $2.30 at the first of 1916, but advanced rapidly to $2.65 and $2.75.



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And such a policy finds its reassurance, its justification, in the fact that Dealers (wherever Paper Bags are bought and sold) know its mark for a guarantee of the best in that particular grade.

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American Paper and Pulp Brilliant Dinner

Banquet Which Concluded the Convention at the Waldorf-Astoria Thursday Evening Is Attended by an Unprecedented Number—Excellent Dinner Is Served and a Thoroughly Good Programme Is Carried Out Afterwards with Speaking of Unusually Good Order.

Thursday evening the members of the American Paper and Pulp Association gathered in the Banquet Hall of the Waldorf-Astoria for the annual banquet, which marked the fortieth year of similar meetings of the Association.

And they gathered from all the corners of the country. In spite of the efforts of those in charge of the occasion to restrict the attendance within bounds, there were a thousand diners present, a record for such occasions. The hall was filled to overflowing, and the tables showed very few empty places, for seats were at a premium.

The program of speakers, which was the big feature of the banquet, was made up of Rev. Nehemiah Boynton, D. D., the "chaplain" of the Association; the Hon. Patrick H. Kelly, of Michigan, and Mr. H. L. Fogleman. The speakers were introduced by President A. B. Daniels as toastmaster.

The banquet was preceded by a reception, and the diners took their seats at about 7:30.

Mr. Daniels' Address

President A. B. Daniels, who acted as toastmaster, spoke as follows:

Gentlemen of the American Paper & Pulp Association and our Guests: A facetious toastmaster once introduced Former Governor Black of your State in about the following manner:

He said: We are about to hear from Governor Black, one of our most interesting after-dinner speakers. He dines out every night, and he always makes a speech. In fact, it has become an axiom that all you need with Black is to drop a dinner in the slot and up comes the speech.

When the Governor arose and thanked the toastmaster for his introduction he stated that he differed with him in one very essential respect, namely, that when the toastmaster dropped the speech in the slot up came the dinner.

I am going to profit by that experience to-night, gentlemen, for several reasons: One of them is that I believe that when we take your good money here to-night that you are entitled to permanent ownership of this dinner; and, as I have been a party to this transaction, it would be a very ungracious act of mine to try to disturb that title.

Another reason is, that we have guests here from Brooklyn who are anxious to take the last submarine for home (laughter); and as we all recognize the dangers of foreign travel to-day, I am sure we won't interpose anything that will prevent their safe return.

If we might measure your interests in our association by the attendance at our annual dinners, we have reached the pinnacle of our success to-night, for I believe that our attendance here this evening is the largest we have ever had. I believe, however, as I look over this audience, that there are a few that did not attend our business meeting this afternoon (laughter); and I am inclined to believe it was my fault in not selecting the right room. To those people who were not there, however, I want to say that your association, I believe, that its members have shown a growing interest in the work we are doing, and I believe I can safely say that your association has never done more constructive and important work than during the past year, or has been of greater service to its members. (Applause.)

I am also glad to report that you are out of debt—we have no unpaid obligations—and to-night we have a membership of over one hundred more than we had a year ago; and our prospects are very encouraging for materially increasing that number.

I believe there is a growing appreciation among the paper and pulp manufacturers of the value of association work when conducted along safe and sane lines, with the full realization of the powers as well as of our limitation. And with your co-operation we should continue to grow in usefulness as the years go by, and creditably represent this most important industry.

This is the fiftieth anniversary of the introduction of wood pulp in this country in American paper making, and we are most fortunate to-night to have with us the gentleman who first introduced wood pulp to this country, and one of our former presidents, the Hon. Warner Miller. (Applause.)

Mr. Miller very kindly prepared a very interesting paper on this subject, which was read at our annual meeting to-day, and which will be published in the proceedings of that meeting. And to those of you who were not fortunate enough to hear it, I call your attention to it at this time and ask that you be sure to read it.

I am just going to read at this time a few lines which Mr. Miller wrote in closing, which will be of interest to many of you gentlemen here this evening. He says: "I learned the making of paper of straw in 1863 at 25 cents per pound. I began making wood pulp at 20 cents per pound, and quit the business selling a better paper at $36.00 a ton at a loss. The publishers got the benefit.

"I am glad to know that the paper manufacturers have at last come into their rights and are now recovering some of the losses they have made during the past ten years." (Applause.)

About five o'clock to-night, two gentlemen of the press telephoned me and asked for an interview, which I granted to them, and one of the questions they put to me was, if I believed that the newspaper manufacturers were not securing abnormal prices for their papers. I said, "Gentlemen, I am going to read to you an extract from this paper prepared by Senator Warner Miller"—they quietly folded up their tents and left my room. (Laughter.)

I want to express our appreciation of the invitation which was extended to us, officers and members, to attend the Canadian Paper and Pulp Association recent meeting. I was very sorry it was impossible for me to attend, but Mr. Moore, your vice-president, represented us at that meeting, and he brings back to us very glowing accounts of it.

It is a pleasure, also, to welcome to-night so many Canadians to our annual banquet and dinner. Our interests are closely allied. With the exchange of information and the fuller acquaintance of manufacturers here and in Canada, it will be our endeavor to further cultivate this very friendly relation.

Gentlemen, never before in the history of this association, now entering upon its forty-first year, have we been confronted with such grave national conditions as are facing us at present. We are to-night confronted with the most serious crisis in our history.

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Range of weights from 24 x 36—10 to 150 lbs.
Daily Product: 60 Tons Paper and 50 Tons Sulphite Pulp.

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Uncertainty naturally produces anxiety, and this country has for months been in a state of uncertainty and unrest; so we were more or less prepared for the last decisive step. Now, we are beginning to know what confronts us; and when we ascertain full facts, we shall, I am sure, be able to meet the situation. (Applause.) What effect this will have upon the industrial life of this country, it is now too early to say, although some predict greater activities in many industries, for certainly never were the fundamental industries of Germany, England and France so prosperous as under the stimulus of war demand. And I would not be at all surprised if actual hostilities in this country should usher in a fresh industrial boom!

We have gained one billion of gold since the European War commenced, and changed from a debtor to the creditor nation; and inventories everywhere have been taken at cost, and every preparation made for the inevitable day of reckoning. All factors go to differentiate the present conditions from credit stringencies or industrial panics. Three months ago we were waging one of the greatest political wars in this country that we have ever seen; even members of the same family were aligned up against each other. But when Washington flashed that message over the wires less than a week ago, in an instant all party lines vanished; there were neither Republicans nor Democrats (applause); neither pro-English, nor pro-Germans, but all pro-Americans (applause), and members of that great patriotic party standing like the hills in back of our President, making every one of us thrill with pride that he is a citizen of the grandest country on God's earth. (Prolonged applause.)

Gentlemen, the first speaker to address you this evening is a gentleman who has attained wide prominence in speaking on subjects pertaining to business fundamentals. He has appeared before the chambers of commerce in most of the large cities from the Atlantic to the Pacific, and has possibly addressed more national and state conventions than any other man during recent years. I predict that you will listen to a most inspiring address, and I have the pleasure of introducing to you Mr. H. L. Fogleman, who has selected the subject of "Personality in Business Building."

Mr. Fogleman's Address

I am going to base my remarks on three definitions, first of business building, which is the power to make profitable connections, and the matter of salesmanship, which is the power to purchase at a profit, and that of service, which is the need to serve to the profit of buyers and sellers. You remember the business man's maxim, that no transaction is a just transaction unless profitable to both parties concerned. You ought, as business men, to put yourselves on the other side of the fence once in a while and attack it from the position of the customer, and that is when you make your proposition, unless there is profit to me, you had better not take up my time. The science of business, the science of service is "He profits most who serves the best." We must make service the heart of the institution, I mean in the spirit of having received something from somebody, makes me obligated to everybody.

And in the degree that he fails to do that his adminlstration will be a proportionate failure. Salesmanship is the biggest power given unto mankind, the power of persuasion.

There are only four factors entering into this question of salesmanship: first, the salesman; then the goods; then the customer, and then the sale itself. In every sale, those four factors are present. When I sold newspapers on the street corner, when I sold locomotives and cars, I found those factors present. The party of the first part, the thing we were engaged about, the party of the second part, and the meeting of the minds; the salesman, the goods, the customer, and the sale. They are even present in the sale of yourself to your sweetheart. You are the salesman. You think you are the goods. She is the customer, and you must have the meeting of the minds before you call Dr. Boynton in to perform the ceremony. The only thing that helps us at all in this matter of salesmanship is mind-building and body building.

Every time you come into a man's presence, a sale is made. Either you sell him a bill of goods or he sells you the idea of leaving the office without the order. You have only one chance to think and that is the second you step into my office. You cannot wait until after you lose out and then while you are walking down the street scratch your head and say, "If only I had said this; if only I had thought of this, I believe I would have succeeded."

Reliability is the keystone on the road to success; reliability is that something within you that makes the other fellow feel that he is being served honestly and getting a square deal at your hands. Reliability is at the center of consciousness, and the warmer your feelings, the more reliable; and the colder your feelings, the less reliable you are.

Now, how can you develop that reliability? You can develop it just as you do the muscles of your arm. You must have faith in your goods; you must have faith in your employees; you must have faith in the buying public; and, last, but not least, faith in the Supreme Being; that faith is born of knowledge and ripened into action. According to your faith, so will it be unto you; that was said long ago, and it is true.

It is possible to develop the quality of honesty and the degree of it, so that you cannot lie; and God speed the day when you canot lie; when you are too loyal to be untrue.

Show me the man who is weak in action, and I will show you a man who is weak in will; and I will say it is possible for every man here to develop his will to a much more marked degree. But I tell you, boys, you younger fellows, don't get discouraged if you don't reach the pinnacle of success at the outset.

Don't become discouraged if you have not gotten that position that you have been looking for, and take this advice home with you that any man who has made any money got it by working thirty, forty or fifty years, and working hard with the same perseverance.

Perseverance may be born in a log cabin, but it will find its way to the White House. Perseverance may drive an old mule on the tow-path, but it will find its way to the Presidential Chair. Perseverance may be born in the humblest farm, but it will find its way to the top of the biggest institution represented here, and that is the history of many a man in this presence, because he perseveres.

There are only four kinds of individuals in your institutions; First, those that must be told what to do, and how to do it, and be checked up; secondly, those who must be told what to do and how to do it, and don't need to be checked up; and, third, those you can tell what to do, and they will do it, and do it without any checking up; and, four, the best fellows, those you need not tell how to do it, and you give them a general policy, and they do it without any checking at all.

The quality of your thinking to-morrow is going to be determined by the condition of your body, and the condition of your body is going to be determined by nine things—Think right; breathe right; drink right; rest right; eat right; relax right; recreate right; sleep right, and work right—do those things right and you will be all right, but do them better, and you will be better.

Gentlemen, I don't believe in the principle of reciprocity. I don't believe in giving Christmas presents, but I do believe in giving service, sacrificing myself upon the altar of the business world, only in order that my fellow man may be benefited.

"I am debtor to the weak because of what the strong have done for me. I am debtor to the poor because of what the rich have done for me. I am debtor to the sick because of what health has done for me."

Fox River Paper Company

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Manufacturers of

Loft Dried Writing Papers

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OLD BADGER LEDGER
WARWICK LEDGER

THE BROWNE & STUART COMPANY

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Offset Papers — Coated Papers
Bonds and Ledgers
Offset Blanks — Coated Boards
Wrapping Paper — Box Boards of All Kinds

You and I are the advance guard of the conquests of the world. You and I are what we are today because of what others who have gone before us have done for us, and you and I are simply taking up the work where they laid it down, and carry it on in the name of civilization, in the name of commerce, and in the name of Americanism.

Service must be right in quality, quantity, plus manner. For instance, I am dealing with an institution. You are selling paper and pulp, but practically the only thing you have for sale, gentlemen, is service, integrity, character. I want to tell you, gentlemen, that the value of a proposition does not lie so much in the proposition itself as it lies in the integrity and character of the man back of the proposition. I do not care a snap of my finger for your commodity until it has been converted from the unknown quantity into the known quantity—money; and the best way to convert it is through human power and through integrity and the character of your man power. Now, I say your service must be right in quality; it must be right in quantity; it must be right in manner. For instance, I am dealing with an institution. I find the quality right; I find the quantity right; and I find the manner of serving altogether wrong. I find I have received a wrong statement from the institution. I find I am treated with discourtesy on the part of one or more employees in the institution. I find when I call up the institution on the telephone that I receive a rough tone of voice, "Hello. What is it? What do you want?" You know there is only one-fourth in what you say and three-fourths in how you say it.

There are certain principles that we have to follow. Same price to all! Money back if not satisfied! The customer is king! The customer is right even though he may be wrong! Show me the institution operating upon those principles and I will show you an institution to which the public is making a beaten path. All right; if I don't get quantity, I will eliminate your institution and look for another institution with which to do business. Perhaps the new institution may be all right in manner, may be all right in quantity, but the quality may be off. I want quality, the best that you can give me. You owe me the best that you can give, but the trouble with a whole lot of you is that you go and buy the rottenest raw material and put it up to the highest price you can get for it. I want quality of commodity. I want more than quality of commodity. I want the best kind of a girl at the telephone board. I want the best kind of a girl at the cashier's desk. I want the best kind of a man in your bookkeeping department; I want the best kind of a man in your advertising department. I want a man of integrity and character in the president's chair, and I want the best kind of a delivery boy on your wagons. I want the best kind of delivery wagons. I want the best kind of a horse hitched onto your delivery wagon; no mule or no cow. I want the best kind of harness on the horse. I want the best kind of a delivery man in our service. I want quality of manhood and womanhood to the lowest official in your institution. Now, then, if I get quantity plus quality, plus manner, that spells service, and service you must write with a dollar mark, through the $, for that is what it will mean to the institution. It will mean dollars, because you have rendered something, you have given something, and God has so ordained that you have to give before you can get, and you have to sow before you can reap.

All right, so much for service. Now, the question of business building, the power to make permanent and profitable patrons. The first time you sell me a bill of goods, you don't make any money on me, if you take into consideration the amount of money you spent for advertising, clerk hire, salesmanship hire, office expenses, heating and rent. You will probably be losing money on me the first time you sell me a bill of goods, but if you can satisfy me so well that nobody can satisfy me any better, I become a repeater; the repeater becomes a permanent patron and the permanent patron becomes the profitable patron. If you can get me to buy from your institution without costing you any money, then you are sending up the profit side of your ledger. And that is why we are not meeting the very profitable side of the ledger because it is costing us too much money to get the business that we go after.

Now, then I say business building is the power to make permanent and profitable patrons; and the only way that we can build bigger business, the only way that we can build bigger institutions, the only way that we can build bigger organization, is not through independency, not through dependency, but rather interdependency. I have studied no less than 19 institutions of the middle and far west, and I find in going through these institutions, once in a while, the independent fellow who takes the independent attitude. He stands alone. That is what he is, because he has made himself what he is. He is indebted to nobody. He is a sort of a self-made man and when you come face to face with a self-made man you had better put your hand on your pocketbook and get out of his presence as quickly as you can. He owes you nothing and he will take every darn cent you have.

In every institution, there are four departments, the executive, finance, producing and the selling department. No institution is stronger than the weakest department, and when the strain falls on that weak department, something is going to snap. No department is stronger than the weakest individual in the department, and if the strain falls on that weak individual, something is going to snap. I can give you instance after instance where the strain fell on the weak employee costing institutions thousands upon thousands of dollars.

Sometime ago I was called into an institution in the North Side of Chicago. I lived there for eight or nine years. They felt themselves going into receivership and sent for me to find out where the trouble lie. They wanted to give me three weeks in which to find out. In less than three hours I came back to the president's office and I said: "The trouble with your institution is that the department heads are knocking one another and knifing one another. The employees are knocking you and saying you are no good after all. You know that you cannot strike much of a blow with your hand in that fashion. I will let any man in this audience hit me just as hard as he wants to with his hand in that fashion. But bring the four fingers together, lay the thumb gently across, simply binding them into a fist, and I wouldn't let the weakest of you come up and try that kind of a blow on me. Now, then, I said, there are four departments—the executive, finance, producing and selling departments. Take those departments and their subsidiary departments and bring them together like that; then there is the pillar of the house, represented by the thumb; lay it gently across, not pressing any department or any individual in any department, but rather permeating every department and every individual in every department. Do that and you will strike a blow that will be heard by those who have gone before you to Heaven. You will strike a blow that will knock Hell out of the devil and that will knock the devil out of the business."

Salesmanship is the power to persuade people to purchase a product at a profit. Salesmanship is the power to influence people to think as you think and do as you want them to do. The minister, the doctor, the lawyer are salesmen. They are all selling their knowledge of law, of medicine, of theology, trying to persuade people to think as they think. The President of the United States is a salesman trying to persuade us to think as he thinks. To the degree that he does that his administration will be a success.

I wished I had the time to talk on the subject of human nature, but Mr. Kelly is the next speaker, and he has got to get the 11:50 train. You must be an analyst, so that you can analyze a

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man's questions and answer them, and overcome his objections. If a man does not buy your goods, he does not buy them because he is out of harmony, and maybe he has formed a wrong conception about the proposition. It is up to you to find out on what opinion he bases his judgment, and then, with the science of logic, get after that wrong judgment. Logic is the science of reasoning. You have got to analyze. If a doctor can analyze your case, his treatment will be right, and if his diagnosis is wrong, he will kill you. If a lawyer can analyze his case, he can construct a plea that will persuade the jury. If I can analyze my goods, this table, from the raw material to the finished product, I can construct a policy, and sell things that will persuade people to think. I wish I had the time to talk on the question of character analysis, how we can size up a man by his color, form and quality.

I do not have the time to talk longer; I wish I had another hour. I want to close with a story of a certain colored fellow whose fondness for chicken often led him to his neighbor's hen roost. The old man was surprised one night with the appearance of the farmer and his shotgun. He got away, and as he was passing down through the woods at a great rate, a jack rabbit started down the path. He was not thinking so much of the jack rabbit as he was thinking of what was coming back of him—the man with the shotgun, and he said it would not take much to frighten the old jack rabbit, and he kicked him aside and said, "Get out of the way and let someone run what can run." That is what the white man said to the Indian: "You have this country filled with mines of gold and silver. What are you doing with it? Get out of the way. Let someone run this country who can run it." That is what wireless telegraphy and telephony said to the old messenger on foot, and the old stage coach; that is what the automobile told the wagon; that is what the modern method of paper making told the old method, "Get out of the way." You have got to keep going and growing, and you have to bring out the almighty all rightness that God Almighty put into every one of you, for sooner or later you will hear the voice of someone whisper in your ear, "Get out of the way and let someone run what can run."

I hope you will go so fast that your friends will hear you say, "Please excuse my dust."

However, greater success to every one of you. Success equals happiness. That is the game of life. That all of you may grow happy as you grow older is my earnest wish, and I thank you very kindly. (Great applause.)

The Toastmaster: I do not believe that there is a gentleman in this room but what will admit of the superior qualities of Miss D——, but I do know that there is not one here that wants to see Miss B—— take that dictation next time. (Laughter.)

The next gentleman to address us this evening has come here at a great deal of personal inconvenience, and I greatly appreciate the effort he has made to meet with us tonight.

He was obliged to leave Washington late this afternoon, reaching here after nine o'clock, and is obliged to return on the sleeper in order to be back there in the morning.

This gentleman has undoubtedly been heard by many in this room, and those of us who were fortunate enough to hear him during the recent political campaign, agree that the results would have been far different had we more of his kind to espouse the Republican cause. The former lieutenant-governor of Michigan, for one term a member of Congress at large of that State, and since then representing the Sixth District, at present a member of the committee of naval affairs that is making a careful study of the problem of our enlarged navy. He has selected a subject that is of the greatest interest to us all, one that has been in the minds of us many times during the past two years, and he will now address you. His subject is, "After the War, What?" I have the honor, gentlemen, to introduce to you Congressman Patrick H. Kelly, of Michigan.

Congressman Kelly's Address

Congressman Patrick H. Kelly (Michigan): Mr. Toastmaster, Gentlemen of the Association: It was a matter of a great deal of regret to me that I could not be here to enjoy the dinner with you, because I had a splendid appetite. At one time during the afternoon I was very much afraid I would be obliged to wire Mr. Daniels that I could not come. Just at this time we were considering in the House the Naval bill for this Congress; and as a member of the committee, it would have been very difficult for me to be away during the afternoon. But Congress went off on a kind of tangent, on other lines, and the Naval bill did not come up until late in the afternoon, and will be resumed in the morning, at which time the Congress of the United States, without any doubt, will put into the hands of the President of the United States $150,000,000 to complete the ships heretofore authorized. (Applause.)

I want to be there when that is done. (Applause.)

It has been a great pleasure for me to be here. It was really worth the price of coming up, and the effort of coming up, to witness Mr. Sisson lead the orchestra. (Laughter.)

I do not know when I have heard a more inspiring address than was given to us by this great business creature who has just preceded me. If the name was Fogarty, or anything like that, I could then understand it; I would then know he was anxious; but "Fogelman"—I do not know—it must be half Irish and half Dutch. (Laughter.)

Then another happy and great surprise which I have had since coming was the pleasure of meeting Dr. Boynton again; for, as most of you know, Dr. Boynton for a great many years was a great preacher in the Middle West, with headquarters at Detroit. (Applause.)

It has been my pleasure to hear him on many occasions, and I have a great mind to stay tonight and miss that sleeper to hear Dr. Boynton; and if I do not hear him, the doctor will know, and you will know that it was a matter of great disappointment to me.

Three or four weeks ago I attended a meeting of the Southern Congress which was held in the city of Norfolk. The secretary of commerce, Mr. Redfield, was one of the speakers on that occasion; and in the course of his address he discussed with the business men there, the situation which would confront American business, as he saw it, at the conclusion of the European War. And so I thought when invited by Mr. Daniels that I would pursue somewhat the same general theme here tonight. This is a most unusual hour in the business prosperity of America. I suppose there have been but few instances in the whole history of the country when we were making any more money than we are making now. And I do not suppose there is a thoughtful man here who has not been for some weeks and months, perhaps, looking forward with more or less apprehension to what is going to happen here when the American business men have to go out and fight for trade instead of having business thrust upon them.

I suppose there never was an hour in the history of this country when the American people enjoyed such a large percentage of our own domestic business as we are enjoying tonight. Why is that true? Why, at the breaking out of the war, and from that time on to the present, pretty nearly the whole of the continent of Europe has been shut out of the American market. The great German Empire for two years and a half has not been able to sell in the American market at all, or scarcely at all. The same thing is true of Austria, Belgium and Russia, and so I say practically all of that entire country of Europe, and all of that tremendous trade which normally would go to those countries by reason of their imports into this country, has been cut off. The American business men have gone in and seized that fortune of our domestic business for ourselves. Not only that, but England and France, two other great importers into this country, have been

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so busy preparing themselves for war, that they have turned their industries from competitive lines into lines of work preparing for their armies in the field. And so tremendous imports of manufactured articles from those countries have fallen off. So I say that tonight the American business man is enjoying a larger percentage of our local domestic commerce than ever before in the history of this government.

And then on top of all that, for the last two years and a half, we have gone forward steadily increasing our exports beyond all the dreams of American business men in days gone by.

Last month our exports amounted to $517,000,000 from this country. Multiply that by 12, and you get $6,200,000,000 as the sum total of our exports for a year, if we go on as we are going now.

Now the high watermark of our exports has been, in ordinary times, two billion dollars. So that hanging on to our domestic business in a larger degree than we have ever been able to get it before, we have dumped on top of that an extraordinary business of four billion dollars, a year over and above our normal foreign trade. I do not know how much a billion is any more than you do, but I know it is a corking lot of money. Now it has been stated that three-quarters—I do not know whether it is true or not—but taking manufacture by and large—it has been stated that three-quarters of the value of an article represents labor, and one-quarter is material. If that is true, then three-quarters of the four billions of extra foreign business represents three billion dollars' worth of labor. Allowing each man one thousand dollars a year, that three billion dollars' worth of foreign business would represent the employment in America of three million men engaged on this temporary export trade, which we are enjoying at the present time.

Now, then, I have tried to find out a little bit more—as to just how this might affect this country. It is hard to translate billions into days' work, but that is the real test after all of the whole thing. The value of business or the value of an industry, depends upon the days' work for men that it gives. And so I thought I would start out and see what I could of this tremendous foreign trade—see whether or not it was a temporary business, because it makes no difference what our policies may be, we want to look this thing squarely in the face, and to analyze the situation and get ready to meet that situation when the time comes. So, a while ago I took a trip all along the Atlantic seaboard in order to find out, if I could, where a large part of this tremendous export trade lay, and whether or not it was a trade on which the American business man could permanently rely.

The first place I visited was Hopewell, Va. Hopewell, Va., is a town of forty thousand or fifty thousand inhabitants. Two and one-half years ago there was no such place on the map as Hopewell, Va. Now, as I say, they employ there at one great factory twenty thousand men. And what are they making? Guncotton. What is guncotton? It is the first process in the manufacture of smokeless powder. They were using one thousand bales of cotton a day at $100 a bale, or $100,000 of cotton in that one plant in a day. And those 20,000 men working at that temporary employment will have to be taken care of in some other business by the business men after a while.

Then I went to Eddystone, just outside of Philadelphia. There I found a new plant employing 14,000 men at a shift, three shifts, 42,000 men in all. An entirely new plant. What were they making at Eddystone? Rifles and sabres for Great Gritain and France. There will be 42,000 men who will not be making rifles and sabres when this great contest across the sea is ended. Then the American business man has got to recognize that these forty odd thousand men will be looking for positions elsewhere when the war ends.

Then I went to the Bethlehem Steel Company, at Bethlehem. They are the Krupps of America. They make the steel for armor and guns and for ships in the navy. When the war broke out they had 23,000 men, and now they have 73,000 men employed; and those excess men are employed making guns and munitions of war which are shipped to the front on the battlefield of the old world.

I then went to this New England city, Bridgeport, Conn., and saw one great new factory up there, four and one-half miles long, five stories high, 300 feet wide, and employing 10,000 men, and not an American order in the plant. What were they making there? Rifles and sabres for France and Russia. A half a mile away they had ten thousand more men on some kind of work; and at Ilion, N. Y., they had ten thousand more. That one concern, having 30,000 men on temporary extra employment!

A great many have the idea that this temporary business is for war supplies and ammunition only.

I went to New England and visited a great cotton mill in Manchester, N. H., where the proprietor told me he had converted practically his entire output into the manufacture of cotton duckings. What for? For soldiers' tents and other equipment. Then I went to great woolen mills, and they were making blankets for soldiers. Then the great shoe factories around Boston, they are making military shoes for the men of the armies abroad; and so the business men of America have got to realize there are certain kinds of business which, when the war ends, will naturally fall off, and we have got to look the thing squarely in the face to see how we are to turn matters about and give these men employment in other lines.

I think it is one of the greatest business problems the American business man has had to meet, which will confront them when this situation comes to an end. But, somebody will say, "We will export on other lines, perhaps to build up the waste places in the old world." That may be so, in part; but we must remember that our three competitors on the other side have not been wasting very much as far as their industries are concerned. Take Germany. While no hostile foot has been planted on German soil since the war began, of course her industries are not destroyed. On the contrary, they are organized on the least cost, throughout that wonderful Empire. To me it has been the marvel of the world that the German people have been able to, out of their own factories, without assistance from the outside world at all, have been able to take care of their domestic needs and their business requirements; but also to meet the requirements of their great army in the fields, out of their own factories.

But it would be idleness for us to dream that a nation which could take care of its peace needs, and on top of that the tremendous war needs, would not be a mighty sharp competitor in her industries as soon as she can turn her attention into peaceful competitive channels.

The same thing is true of France. A few days ago I had a visit from Ambassador Herrick, who was our ambassador during the Taft administration and the early part of the Wilson administration, and he spoke of the tremendous advance they had made in France in industry. He spoke also of how successful the women had been in the industries over there. How that now they turned out goods which formerly took them an hour and a half, they now turned them out in the space of four or five minutes. So that now that country is one of the marvels of the world in industry.

The same is true of Great Britain. The chairman of the Federal Trade Commission, Mr. Hurley, made a speech a few evenings ago in Cincinnati, addressing the bankers there, and calling the attention of the bankers and business men to this condition which they must look forward to. Mr. Hurley spoke of the competition American business men would get at the end of the war. He said they have cut corners over there and reorganized their industries; and they have made more progress in their industries in England in the last thirty months than they had in thirty years prior to the war. And so men representing great business interests in America, from all over the United States, as you come, not only in the

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paper industry, but in the other lines of endeavor, you will be serving your country well and the industries of America well, if you will give careful heed to the domestic and industrial situation which will inevitably come here when the war ends. This is the time you make big profits; and as the Secretary of Commerce advised the men down there, it is the time to put in new machinery. This is the time to take out your old machinery. Get your industries organized now on the soundest possible basis you can, as the time will inevitably come when France and Great Britain and Germany, under the stress of war, having reduced expenses, and cut corners, and improved their industries there, will be heard knocking for admission into our markets, and also into other markets outside which you are now enjoying. So it comes to this, it seems to me, that the great business of America, the great business community of America, should look well to what will naturally and normally come to us at the close of this period of exceptional and unusual and temporary commercial advantage.

Now, just one word about the other side of this, and then I am closed: Not only must we look well to the situation as our business needs are concerned, but America must look to its international situation. We must look the world squarely in the face. No use to put our heads under a bushel. We must see how the world is to be reorganized when the war ends, as there will be a reorganization of the world practically from the ground up at the conclusion of the great strife going on across the sea now.

A while ago Japan and Russia formed some kind of an alliance. Nobody seems to know exactly what it is. Undoubtedly it affects the trade in the Orient. Quite likely it affects China. It may affect us. No one can be sure of that.

It has been rumored that this arrangement between Japan and Russia has gone to the extent of providing that each country will support the other in their demands, and that the citizens of each country shall be accorded the rights of citizens of the most favored nation. In that event, when Japan knocks at our gates and asks that its natives shall become citizens on the same terms as people from England and France and other European countries, we might have that demand of Japan backed up by Russia, as well as Japan.

The English had an arrangement which they entered into at Paris in a conference. They said, "We have been buying across the sea there, and those boys have not been any too particular about what they charged us. Now, when the war ends, it may be necessary for us to trade with one another, and give preference to one another." Undoubtedly that would make difficulties in the world.

The Central Powers have made arrangements of nearly the same sort.

Nobody can tell what our situation will be as it relates to the whole world, growing out of the situation in Mexico. A prominent ambassador told me that one time it was a matter of common talk that at the end of the war claims would be presented against the United States for loss of property in Mexico, on the ground that the property there was destroyed under a government of our making. And so you can see, men of America, for you come from all corners, that this is a time for thoughtful consideration not only of our domestic questions, but the whole range of our relations with the nations of the entire world. Every man should at this time, it seems to me, dedicate himself, as he has never dedicated himself before, to his country and to his country's highest good. Whether it be in a domestic way or in our relations with the outside world. (Applause.)

We should dedicate ourselves, it seems to me, looking into the future, knowing what difficulties and dangers may possibly be met at almost any time, we should dedicate ourselves anew to all the high and holy purposes symbolized by the flag of the Republic. (Applause.) And what does the flag of the Republic stand for now? Why, it stands for liberty and equality by law.

There can be no such thing as liberty, except it be through the orderly processes of the law. It stands for the rights of persons and for the rights of property both. It stands for the rights of the American citizen at home or abroad, wherever he has a right to be, and wherever he is behaving himself. (Applause.)

Now, I want to say to you that the nation that does not protect its citizens under those circumstances is apt to wake up to find that it has forfeited the protection of its citizens on the other hand. (Applause.)

Protection is reciprocal. When the nation is in danger what does it do? Why, it goes to the citizen, does it not, and asks him for all that he has, for the protection of the Government. By the same token it is the duty of the Government to protect the citizen, when the citizen is in danger, if that danger has not come by any fault of his. (Applause.)

I don't know how you feel about it, but as for myself, I have grown tired of seeing American citizens forced to the necessity of putting British flags and German flags in their buttonholes in order to get protection in other lands. (Applause.)

The flag of our country stands—Dr. Boynton—for a Christian civilization, the highest and the cleanest and the best on the globe. When the Lord gave us the heart of this great continent, I have always believed that it was intended that there should be built up here, under a new flag, a new civilization, which would be higher and cleaner and better and freer, and more enduring, than any other civilization in the world. (Applause.) And personally I have always believed that it is the duty of the American people to protect that civilization against all cheaper and meaner or inferior civilizations, wherever they might be throughout the world. (Applause.) And men of America, the flag of the Republic stands for the universal enlightenment of our people, because every one knows that free schools and free Government go up and down in the scale together, and that you cannot long continue to have the one without the other. It stands supremely and pre-eminently for the American home, and for all virtues which thrive and cluster around the hearthstone. Standing for all these things, may the God of our fathers protect it and defend it, and may it ever continue to be the emblem of liberty and the abode of promise for all mankind. (Applause.)

The Toastmaster: Gentlemen, we have another speaker here whom I know you are all anxious to hear, and I hope those gentlemen in the rear of the hall will kindly refrain from further conversation, to the annoyance of the other people here who are anxious to hear the speakers. The next speaker, gentlemen, needs no introduction to this audience, for we should feel that our gatherings here are very incomplete without his presence. He has favored us on several occasions. We have learned to honor and to love him. We have tried to make him feel that he was a member of this family; and so universally has that been accepted that on one occasion he was taken for the president by the waiter and asked for the wine checks. (Laughter.) So I feel that he is ours by adoption. He has received from this platform various sorts of introductions. He seldom announces his subject, and I realize that it is a dangerous proposition for me to stand here and say much regarding what has happened before, because I have seen the consequences. The Hon. Job Hedges on one occasion accused him of springing an egg story on us that was canned in 1840, but we know that he has stories of a far more recent vintage than that, and I know that we are all anxious to hear from Dr. Boynton. (Applause.)

Rev. Mr. Boynton's Address

The Rev. Nehemiah Boynton, D. D.: Mr. Toastmaster and gentlemen, the only trouble with that story that was canned in 1840 was that my friend Job was the only man who was living at that time, and therefore had original knowledge with relation to it. (Laughter.)

There was a minister down at Cape Cod a good many years ago who was preaching a sermon, and right in the middle of the sermon an enthusiastic fisherman put his head in the door of the

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church and he said: "Whale ashore; whale ashore," and immediately every man in the congregation started for the door to get his share of the blubber, whereupon the minister called out, "Brethren, brethren, give the Dominie a fair show." (Laughter.) I felt tonight, while these brethren were speaking so eloquently and were poaching on my preserves—you will admit it, as you think of what they said—that the old Parson ought to call out once more: "Give the Dominie a show." (Laughter.) I could have helped Brother Fogleman out of that stenographer business, if he had only appealed to me. (Laughter.) Four stenographers present too much of a temptation for the ordinary American. (Laughter.) What he needs is a Dictaphone. (Laughter.) He would get rid of three of those stenographers and could go an extra half-hour at noon—and I don't charge anything to the Dictaphone for this free advertisement. (Applause.)

I was solemnly warned a week ago by a gentleman who knows many of you, not to come here tonight, and by all hazards to stay away, for he said, "The paper and pulp people are in such a happy frame of mind just now with relation to their business that God himself could not even give them any comfort on the one hand, or any information which they would receive upon the other hand." (Laughter.) And I have been thinking tonight that if I could capitalize these wonderful smiles which are upon your capacious countenances—I have not seen anything like it in New York this winter—if I could only capitalize those smiles, I could endow Secretary Redfield's effort to make the American people believe that the dogfish is an edible fish. (Laughter.) And he will need some capital before he gets round the one hundred million of us with that particular persuasion.

When your toastmaster made those remarks to you concerning your own financial situation, that you were out of debt, and that you were square with the world, well, I said, "How different that is from the class of manufacturers with whom I am most intimately associated"—my own fellow ministers. We are square with the world, to be sure, but it is on the principle of that shrewd Yankee who met a board of directors one day when he wanted to hire some money, and to impress them he made a remark the first part of which was true, but he gave himself away on the last half. He said, "Gentlemen, I am square with the world. I owe about as many as I don't owe." (Laughter.) And when the genial reference was made to that billion dollars of profit which our country had made, I said to myself that since we have had the splendid lay preaching from the first speaker, with its inspiration, broad and comprehensive and statesmanlike utterances from the second speaker, the only thing for me to do is to do a little business with you. (Laughter.) But just for a few moments I am going to give you a chance to invest. When I get through you will find that I am not violating principles by introducing business upon a social occasion, but this, gentlemen is something so absolutely unusual and unique. It is so certainly true that there is millions in it, that after you have taken your stock you will be absolutely satisfied with the opportunity for business, which, just for a moment I am going to give you tonight.

I tried it on with the American Drug Association last night, and there was not a man that was good sport enough to take any stock. I will expect a different result from the people who, during this last year have made these wonderful profits.

I must begin with a little story, just to introduce it, and get your attention. There was a minister who got a little discouraged, because when he gave out his text all the men in the congregation cleared away for a Sunday morning nap except one man, and that blessed man—there is always one in every congregation who comes up at the close of the service and irrespective of the fact of whether he is telling a whopper or not, always takes the minister by the hand and says, "That was the most helpful message you gave to us this morning"—there was just one in this church of that elect company of men.

You will find those fellows in the orchestra chair in Heaven when you go there and there won't be any of them in that other monosyllabic place to which reference was so frequently made this evening. The minister said to him, "My dear fellow, I sometimes get discouraged when I get out my text. Everybody squares away and takes a nap except you, but I have made up my mind that if there is one man who will keep awake while I am preaching I will plod on in faith and in hope and in love, in the confidence that somehow the seed which I will sow will catch somebody's soul and spring up to the glory of the incoming kingdom."

The deacon said to him, "Yes, Dominie, I am sorry to say it is true that when you get out your text all the men in the congregation square away and have a nap and I sit and think of nothing." Now, gentlemen, here is just the point, that man read his sermon and those sermons were written upon the paper which some of you men manufactured; and therefore it must be true that there is something in that paper which has a somnolent effect upon the congregation. Listen! Don't go to sleep for the moment. One of the greatest troubles in this country today is insomnia. The number of people who cannot sleep from 11 o'clock at night until 6 o'clock the next morning is terrific. The first speaker confessed himself to be in that fix and cured himself by that very, I must say, doubtful and inconvenient method of putting on a portion of his clothing and running around the block. He said himself that it was not a fine way to cure the disease which he had; rather a rough, rather a coarse way. But there are thousands of people here in New York tonight who cannot sleep. They have insomnia. Now, if as a kind of a sideline we could somehow get out of those pages of paper which you men print that somnolent residuum which there is therein, if you could put it up perhaps in the form of a pill with a sugar coat over it, perhaps in the form of liquid, say six bottles for $5 or something of that sort and get it on the market, then we would be able to attack this great and grievous malady which is upon the American people. And we would be benefactors on the one hand because we would sweep away all the insomnia there is in the country, and I, as well as yourself, would have a residuum in my pocket at the end of the year as the result of the investment. (Laughter.)

I think I can start that if I could have about $200,000. You see what the point is. You have never realized that that by-product was there in that sermon paper which you have been making, and selling at these enermous rates to the Men of God. You never realized that a gold mine is right under your very eyes. I will tell you about it. I am going to be the treasurer myself and if you want to subscribe literally to this bring up your checks. I will take them. And if you ever see me again we will talk about the prosperity of the new business.

What we have to have in America, Mr. Cougressman, are new lines of business to take this extra capital which we have and which we do not know what to do with. What better could we do with it? What better could we do for the sake of humanity, for the sake of the world, for the sake of the expression of the benevolent impulses which are in the souls of you all. What better could you do than to subscribe to this new endeavor to provide through those sermons on paper somehow a specific, say six bottles for $5 or a dollar a box for pills, to relieve the National malady on the one hand and my slender pocket in the other. But, having disposed of the business, I will not want to impress it unduly upon a social gathering like this. But think it over. There are millions in it for the man who has ventured to go ahead with it.

I want to tell you one story about a Japanese and say a word or two about it and then sit down; because if I don't stop pretty soon and my wife does not happen to be asleep when I get home, there will have to be some very personal and particular explanations which I wish to avoid myself and which I would like to have the other gentlemen avoid who like myself will have to make their returns when they get home.

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There was a distinguished Japanese who was in New York a while ago. They were showing him the sights, and among other things they took him to the Woolworth building. They were about to step into an elevator to go to the top of the tower when his friend laid his hand on his shoulder and said, "Don't take that elevator. That is the accommodation elevator. Step into this elevator. This is an express elevator and we will save 15 seconds in going to the top of the building. The inquisitive Japanese turned and said, with all delicacy, but with penetrating suggestiveness, "Indeed, save 15 seconds. What will you do with it?"

What will you do with it! That is one of the greatest questions up before our American life today. Think of the way our population has increased since the close of the Civil War. Thirty million people in America then, very largely a homogeneous nation. Tonight, in the memory of living men, our country has multiplied her population threefold until there are 100,000,000 beneath the Stars and Stripes on our own continent, and 109,000,000 if you take in our insular possessions. There never was such a phenomenon as that in the history of the world. We have come from a homogeneous nation, as we were when I was a youngster, to being today the most heterogeneous nation under the face of the shining heavens. It is that very question of heterogeneity which is giving anxious thought to a great many people who are in Washington just now. What will we do with it? In the presence of this heterogeneous population that is the question which comes right home to the soul of anybody in America who has anything at all to contribute. I rejoice over the prosperity of America. There hasn't any of it come to me. I don't know of but one minister who has profited by it, and that is the efficient financier to whom allusion was made in the first address. I don't begrudge him that. But the question comes to us in our sphere just as it comes to you in yours, "What will you do with it?"

The significance of any man's life is measured by the range of his interest. If he ties his interest down to one thing, he will be a little fellow, and it doesn't make any difference whether that one thing is the philosophical question, "Is the Is isable?" or whether it is the question of the investment of his large and honestly gotten gains. A man who ties himself down to any one thing in this life and makes that the whole of his life is bound to be a little man. And his children, so far as they keep under his influence, will be little children.

God always deals in great wholes, and when he makes a great situation in any part of the world, he always brings around that situation concomitance, which, if the people who have that situation in charge, are big enough to take and employ in the great central interests, results in a great advance for the benefit of the world and those concerned; and if they are not big enough to do that it results in a shriveling process and in a recessional.

I said that our country multiplied threefold, gentlemen. Do you know what that means? It means that every town and that every city in our country has pressing needs for national ministry on the part of loyal and effective men such as we never dreamed of 30 or 40 years ago. It means new parks, it means new sanitary squads to look after the health of the people. It means new libraries. It means new art museums; it means new sanitation; it means new water supply. It means new everything that ministers to the larger and wider and finer life of the community. What will you do with it?

Oh, men! If you don't select some one thing which is outside the line of your regular business and make that the avocation of your life through which your ministry shall go in that splendid spirit of service, to which allusion was so magnificently made at the opening, the result will be that our country will lose out in the next 30 years in spite of the fact that our banks and our trust companies will probably be bursting with the golden reserves which belong to the successful individual. What will you do with it?

A rich man was talking about universal training the other day. I don't know whether you believe in it or not. I do; but we won't discuss that question now. He said that he thought one great advantage of universal training was this: That it would take the boy who was born on Fifth avenue and the boy who was born down on the Bowery, and under our splendid democracy would make them rub shoulders together in the interests of fatherland; and therefore would have a great power in destroying—God grant that it may be speedily destroyed, that little petty miserable Hell-born spirit of caste which seems to be growing up in our country by virtue of which those of us who have just a little scored in the game of life, somehow think that we are a notch or two above the other fellow who is struggling on the very plane which we ourselves probably occupied 20 or 30 years ago.

What will you do with it? Will you become interested in some civil, in some religious, in some philanthropic work which means the uplift of the other man and take the unique opportunity which has come to you through your success in the last few years and use it for the public weal? Or, will you hoard it irrespective of the consequences which shall come to the world after you, in a few years, have been gathered to your fathers?

There was a man on board a ship the other day, and the ship was sinking. He went down to his cabin to get his money belt. The belt was filled with gold, not with bills. He jumped overboard and was drowned. The people talking about him said that the real question was whether he had his money or whether his money had him. That is the question which every man has got to line up with in America today. Have you got your money or has your money got you? Is it your servant, the servant of your country, or is it your master, growing in tyranny, growing in autocracy, growing in ungodly power in your life as days come and go?

You men in the paper and pulp business ought to be very much interested in a book which has just now been given to the American public, an autobiography of Richard Watson Gilder, one of the purest, bravest, and most chivalric American citizens which the last generation saw. He was born a poor boy, the son of a minister. He could not have a college education, because of his health. So he determined to educate himself and started in through a printing office until you remember he came to New York and became the editor of one of the greatest monthlies which this country has ever seen. He had the opportunity for the securing of a generous amount of this world's goods through the position which he occupied, but he was content with that. He looked out over the life of our city and asked himself what there was he could do, where he could throw his influence so that it would tell the most. They appointed him on a tenement house committee and he used to spend hours every week going down in the humbler parts of our city to make his observations; whether such laws were followed and were being respected, and whether there were other laws which ought to be put on our statute books. And thus, while he won a magnificent place for himself in the world of literature, he will always be remembered in this city of ours as a citizen who gave not only of his money but of himself for the weal of the fatherland. This was the man who said, as his life was drawing to its close, "I desire to be judged by my own aspirations and not by my performances nor by my cantankerousness." The situation which confronts us tonight, a situation which cannot fail to stir the depths of the heart of any loyal patriot is one which is asking us, one by one, this soulful question: "What will you do with it?" In this hour of your nation's crisis? What will you do with the particular power which is yours? Whether it is the power of your bank account or the power of your personal influence among young men or the power of your tongue to persuade or inspire. Will you hug it closely to your heart, and as you see this emergency and that or the other emergency arise simply say, "Let George do it." Or will you, at the point of whatever sacrifice is demanded of you, personally make that power which is yours tell for the weal of our country?—that we may hand those principles of liberty, equality and democracy, which we have re-

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ceived from our fathers, by all hazards and by every heroism over to our children and to our children's children, not only unimpaired, but broadened in their significance and deepened in their scope and heightened in their power, by the strength which you and I have lent to fatherland.

I had the great privilege on Monday last of sending a dispatch to the President of the United States. It was only from a little company of Brooklyn ministers. They are a humble folk, but they are loyal. We sent him a simple word to let him know that in any necessary means which he might find it advisable to take to protect the righteous sovereignty and the integrity of these United States. What message do you send tonight to the President of the United States? Do you say, "Mr. Wilson, you are in a tight fix and you have our best wishes, and we hope you will get us out of the fix?" That is arrantly cowardly. Wherever you find that spirit either in the press or on the platform, mark it whether intelligently or unintelligently; the heart of the spirit is cowardice. There is only one thing for the American whether he be rich or poor, whether he be landlord or a tenant, whether he be a statesman or only a humble minister. There is only one thing for an American to say to the President today, and that is, without any reference to one's affiliation, "We are behind you to a man as you strive to defend the righteous interests of our country in no spirit of prejudice or hatred or aggression, but in the pure patriotic spirit which regards our just rights and which is not afraid to accentuate them against any and all comers." Oh, gentlemen, the question of the hour to every American citizen is this, "What will you do with that particular advantage which is yours? Will you use it in the spirit of a Washington, of a Lincoln? Will you use it—I am proud to add—in the spirit of a Wilson?" (Applause.) Or will you keep it to yourself? God knows you have got to do something. We have got to do something in this country, and we have got to do it mighty quick and for a good long time in order to preserve our national reserves. Do something with it. That is my simple plea.

Joe Jefferson used to say that the secret of a great actor was a cool head and a warm heart. That is the secret of a great man whether he be a merchant, a manufacturer, or—God help him—a minister. And if we will make that combination, and offer it in our sphere, as we can, to the weal of fatherland, then we shall be able to sing with pride those words of James Russell Lowell:

Oh, beautiful, my country,
Above the nations;
Bright beyond compare
What were our lives without thee,
And what our lives to win thee.
We reck not but we give thee;
We will not dare to doubt thee.

What will you do with it? (Applause.)

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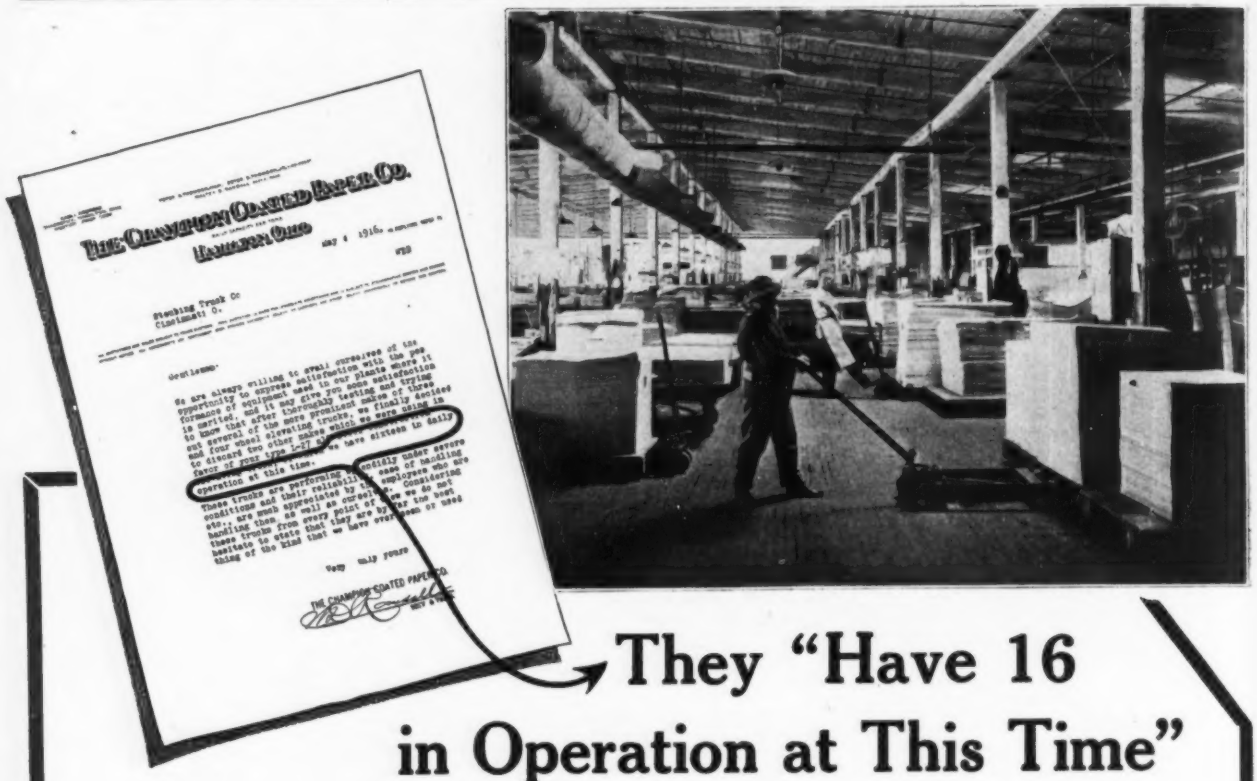

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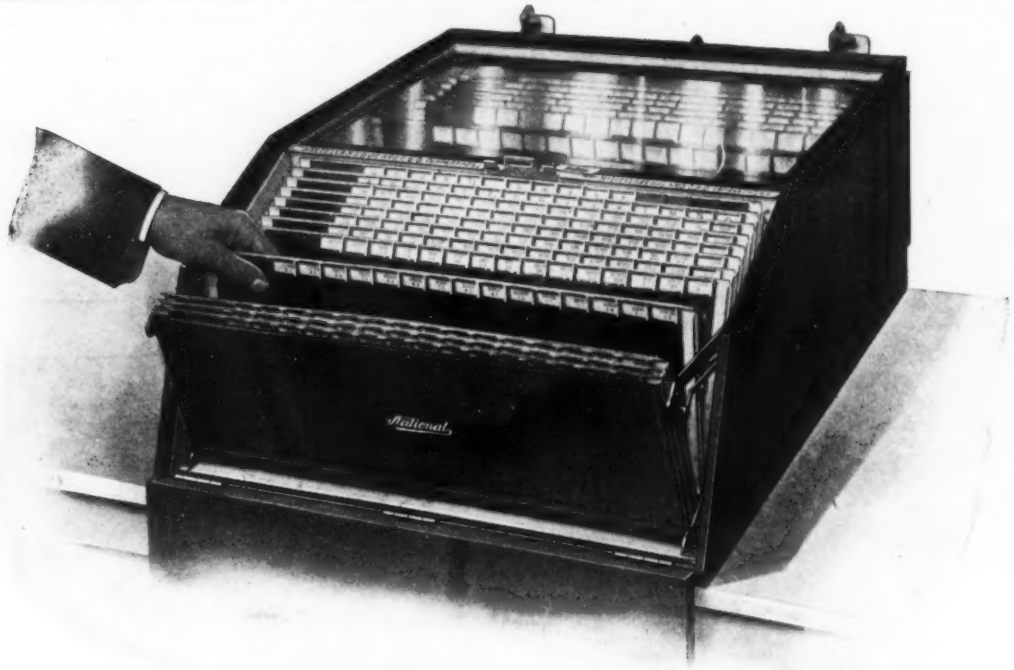

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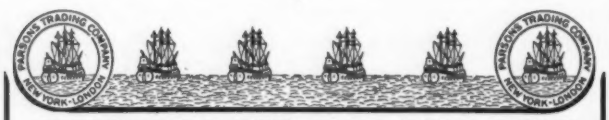

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UNITED STATES PAPER LABORATORIES

Written for the Paper Trade Journal by L. M. Lamm

In order to experiment with paper and to co-operate, insofar as possible with the paper trade, Uncle Sam maintains four distinct laboratories whose duties involve experimenting with paper and pulp in one form or another. Three of those laboratories are located in this city, and the fourth, the Forest Products Laboratory, is located at Madison, Wis. The three here include the paper laboratory at the Bureau of Standards, in charge of F. C. Clark; the paper laboratory of the Bureau of Chemistry, in charge of F. T. Veitch, and the fourth the paper laboratory of the Bureau of Plant Industry, in charge of Jason L. Merrill. The last two named are connected with the Department of Agriculture, and the first with the Department of Commerce. Below a resume is given of what some of these laboratories have done during the past year and what they hope to do for the trade the coming year.

During the past year the paper laboratory of the Bureau of Chemistry has continued its investigations in developing methods for determining the serviceability, durability and suitability of paper for special purposes and under various conditions of service and to prepare specifications for papers of various kinds. The laboratory has co-operated with the paper industry and the Federal departments in meeting the extraordinary conditions imposed by the European war.

Among matters of this nature on which the laboratory has rendered assistance may be mentioned the following: About a year ago the Navy Department found that the price of potassium-ferri-cyanide, which is essential in the preparation of blue print paper, had increased from 55 cents to $7 per pound and was difficult to obtain at any price. The laboratory, having this condition called to its attention suggested and developed a method for preparing this chemical for use in blue print coating. This method enabled the Navy Department to prepare blue print coating at less than one-half of what it would have cost if bought on the open market. The method is in extensive use in the departments and in blue print coating establishments has proven very economical and will prove so even under normal conditions. This method has already been described in full in earlier editions of the PAPER TRADE JOURNAL. Requests for copies of the method are constantly being received by the laboratory.

Formerly the best blue and brown print papers, which are extensively used in all engineering work and indeed are absolutely necessary therefore, were procured from abroad. The laboratory has made definite specifications for this class of paper and assisted paper makers through the government departments in developing the making of this class of paper in this country with the result that as good blue and brown print paper is made here now as can be had from France. A paper dealing with the characteristics, tests and specifications of blue and brown print papers will be published shortly. Another interesting problem which developed in connection with these papers was brought to the attention of the laboratory by the Bureau of Construction and Repairs, of the Navy Department. That Bureau regularly makes blue prints 42 inches wide and ten to twelve feet long. It was found that many papers which were otherwise entirely acceptable were so weak when wet that they tore badly when being washed after developing. The laboratory was asked how to specify paper that would have sufficient strength when wet to stand the necessary handling. From study and investigations a method was developed with which it can be foretold whether the paper will be sufficiently strong when wet to withstand the necessary handling without tearing. A new test was devised known as "The Wet Strength Test." This test is now used in determining the suitability of paper purchased for blue and brown use. This test is not only serviceable to makers and users of blue and brown print papers, but also to those interested in bag papers, especially for lime and cement, in photographic papers, paper textiles, wrappings and paper which is printed while wet. It is expected that the wet strength test will undoubtedly soon be regularly used by all progressive makers and users of these kinds of paper.

Printing and book papers through which the printing does not show are generally preferred both by the publishers and the public. Several years ago the laboratory developed a procedure for determining and stating numerically the translucency of paper. The instrument then described is somewhat complicated and necessarily expensive and a simpler and less costly instrument has been developed for this work. A description of the instrument and process together with the results obtained therewith will be published in the near future under the title, "A Photometer for Determining the Translucency of Paper."

How can one know that he has a good blotting paper or a satisfactory paper towel or copying paper? How does the paper maker producing these papers know that his product is going to be really satisfactory? No single method in general use for determining the absorbency of paper is entirely satisfactory. Consideration of this problem has resulted in the development of a single test by means of which the absorbing quality of paper can be more definitely determined with the result that both the users and makers of absorbent papers are benefited. A paper dealing with this work will be published at an early date. The work on the standardization of the folding endurance tester for determining the probable durability and quality of paper, has been thoroughly studied, and a paper is ready for publication showing the reliability and accuracy of these instruments. This work, it is believed at the laboratory, will prove of the greatest value to those who are interested in securing paper of the maximum durability under severe conditions of service and storage; that is in the examination of paper for permanent records.

Many other problems of greater or lesser importance have erceived attention during the year. The advice and suggestions of the laboratory have been sought by paper makers, the departments and by other paper users, and these have all been helped as fully as it was possible to do so. Shortly after the outbreak of the war the Department of Agriculture called attention to the fact that the price of paper would probably rise and that one of the most effective ways to meet it was through the use of lighter weight paper. Though this advice has been heeded by many publishers and by the government departments, the laboratory is of the opinion that much may yet be done along this line and recommendations to this effect have been made by the Specifications Committee, of which Mr. Veitch is a member, to the Joint Congressional Committee on Printing.

Work which is in progress and which will be ready for publication in the near future, includes results on humidity, and its relation to paper making and paper testing, examination of paper toweling, filter paper, blotting paper and fibre paper.

Officials of the laboratory say that there is very little appreciation of the effect of humidity of the air upon the physical characteristics, serviceability and testing of paper. Work has been done to determine the time required for paper to adjust itself to different conditions of humidity. The errors which arise from taking paper from bell jars or boxes where a constant humidity has been held, and testing under ordinary room conditions, and the effect of humidity on tests with various testing machines,

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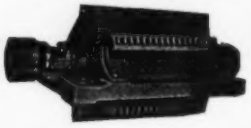

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especially the folding endurance tester, will be shown by this work.

In co-operation with the Forest Products Laboratory and the Fiber Board Manufacturers, work is being done to show how containers made of fiber board can be made more serviceable in the increasing uses to which they are put. This work will necessitate the development of special tests and testing apparatus, improved methods of construction of the boards and the containers and of suitable specifications for both.

The work of the paper testing laboratory of the Bureau of Standards has developed and broadened very much during the past year, to the extent that it is now giving more attention to work, not directly connected with the government service. The attention of the laboratory in the past years has been devoted entirely to the development of paper specifications and methods of testing and to rendering direct assistance to various branches of the government service in connection with the purchase of their paper supplies. The hearty co-operation which many paper manufacturers have given to the paper laboratory has been of material assistance, for it is realized that without such aid, it would have been a difficult matter to accomplish what has been done.

During the past year additional equipment has been installed and plans made to take up some of the problems of the industry, in particular as such problems relate to improved methods of manufacture. This side of the laboratory's work will be broadened in scope as fast as funds and assistants are available. It is also planned to secure the closest co-operation with the newly formed Technical Association of the Pulp and Paper Industry, so that really representative problems may be selected and also that the paper laboratory may have the great advantage that will result from association with the best technical men of the industry.

The past year special requests were received from both government departments and manufacturers for a test that would show the comparative transparency of tracing cloth and paper. A standard test has therefore been devised that not only is simple and quick to operate but has the added advantage of expressing the results in fundamental terms. The essential feature of the method is the measurement of the contrast between perfect black and perfect white as seen through tracing cloth or tracing paper.

The test expresses a ratio between the amount of light reflected from one surface, when the sample to be tested is placed so as to cover the black and white surfaces. It has also been found that this method of test is applicable to determine the transparency of envelope paper and it is now being used for the regular tests on such papers.

During the past year special studies have been in progress relating to the effect of oxidation and hydrolysis upon certain paper pulps. This work was more in the nature of a collateral investigation demanded in connection with the large problem of rosin sizing. The study of rosin size, a material so very extensively used in the industry, is of great importance and it is planned to first determine the fundamental controlling factors. It is not definitely known just how rosin size causes a paper to become ink resistant. Like many another industrial process the art of sizing paper is very well developed, but the science of sizing is still a matter that finds few experimentors in agreement. It is known and fairly well proven, that a high free rosin size cannot be used under certain conditions, but that a neutral rosin soap must be used. The reverse is also true and for this reason it is very essential to continue this work to determine the fundamental facts involved. The question of temperature, degree of heating, and pulps used are also influencing factors and must be worked out if a comprehensive knowledge of the subject is to be secured.

A second problem of great importance to the paper industry is the question of "Loading" or "fillers." Many mills today add dry clay to the beater and try hard to convince themselves that they are securing ninety per cent retention. Many cases have come to the attention of the Paper Section where the retention has been under thirty-five per cent, while other mills using the same materials under slightly different conditions secure a retention of over fifty per cent. Such large losses in raw material must be overcome if the industry is going to keep pace with progress. A study of the factors that influence retention is now being carried out, and will be reported from time to time at the meetings of the Technical Association of the Pulp and Paper Industry. In this way it will be possible to secure frequent discussions of the work as it progresses. A collateral investigation already undertaken will include a study of domestic clays, in regard to their use in place of imported clays.

The work on clays was begun by securing the highest grades of imported clays. These clays are now being tested to determine their color, fineness, rate of sedimentation, amount of grit, plasticity, etc. As soon as these physical characteristics are determined for each sample of clay under examination, the next step will be a series of tests to determine those factors that influence retention. All clays under examination will then be tried out on a preliminary laboratory scale to determine the retention of each under identical conditions. This work will then be duplicated on the paper machine using as near mill conditions as possible. At the completion of this stage of the work it is planned to secure the co-operation of a paper mill having a white water recovery system where mill conditions may be studied on a large scale.

The Casein investigation which has been undertaken was primarily for the purpose of determining how buttermilk casein could be utilized as an adhesive in producing coated paper. This work is of special importance at this time considering the high price of satisfactory skim milk casein.

Casein is an important substance found in milk, and like many other organic substances has a wide variety of uses, such as for artificial ivory, for paints, as an adhesive, and many other industrial uses. Its application in the paper industry is as an adhesive to bind a thin film of clay to the surface of a sheet of paper. Such paper is known as a coated paper and is suitable for the reproduction of photographs where great detail is essential.

This casein investigation was started at the request of the Dairy Division of the Bureau of Animal Industry, Department of Agriculture, and is a joint investigation with it. Its end of the problem has been a study of the production of skim milk and buttermilk caseins, while the application of casein in the paper industry is being developed by the Bureau of Standards.

At the present time the best caseins are imported. The domestic caseins are inferior in color, adhesiveness, solubility and uniformity of product, and any investigation tending to improve the domestic product will not only help to make American industries more independent on the imported supply, but will also help to develop a domestic product.

The particular purpose of the investigation is to establish the most suitable methods for the production of skim-milk and buttermilk caseins, devise methods of testing the finished product, and study the best methods for its use in the paper industry.

The general plan for this work is as follows. The solubility of chemically pure caseins will be determined using various solvents, to show the effect of the various solvents used. The influence of time, temperature, etc., will also be determined. Highest grade imported commercial caseins will then be used to show the influence on solubility of such impurities that remain in the casein during its manufacture. A comprehensive knowledge of the effect of various impurities, found in commercial casein, will enable the process of producing casein to be so controlled, that these impurities may be eliminated. It has already been demonstrated that these impurities have a great influence on solubility, as it has been possible, on a laboratory scale, to take caseins having over thirty-five per cent. insoluble material and after suitable treatment render them almost entirely soluble, while at the same time increasing their adhesive strength several times.

Many inquiries have been received at this Bureau requesting

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information for a source of supply for an American made filter paper. These inquiries, together with the difficulty encountered by all the scientific laboratories both inside and outside of the government service in securing an adequate supply of the imported varieties, has lead this Bureau to give attention to the development of an American made filter paper.

Filter paper is used in all chemical laboratories and in large quantities in industrial work for filtering out fine suspended particles from a liquid. The highest quality of filter paper is imported, and due to present conditions abroad it is almost impossible to obtain it.

Filter papers have a very low percentage of ash, a rapid rate of filtering, and must be free of certain constituents. The chemical treatment after manufacture is highly important and so far this final chemical treatment has not been satisfactorily worked out. It is proposed to continue the investigation along this line, since the final chemical treatment determines the quality of the paper.

This final chemical treatment involves washing the finished paper in successive baths of hydrochloric and hydrofluoric acids. The exact details, such as strength of acids, time of immersion, subsequent washing, etc., has not as yet been completed and therefore nothing definite may be stated. In connection with this work it may be of interest to note that filter paper is made entirely from cotton rags of a quality equal to the ordinary grades known as Number 1 and Number 2, "Street and House Whites." They must be free from colored rags and cooked so as to leave the lowest possible residue of lime compounds. The paper as it comes from the paper machine should contain not over 0.4 per cent. ash and subsequent washing in the above mentioned acids must reduce the ash content to under 0.01 per cent. There are a number of vital points in connection with the manufacture of this grade of paper, and it is believed that a satisfactory paper cannot be developed until certain of these facts are established.

At the request of the Association of American Portland Cement Manufacturers, National Lime Manufacturers' Association, Gypsum Industries' Association (Inc.), and the Eastern Railroad Classification Committee, this Bureau has taken up the question of the preparation of standard specifications and methods of testing paper for use in making paper bags. These paper bags are to be used in place of the usual cotton bag for shipments of cement, lime, and gypsum. The cotton is not entirely satisfactory, due to its cost, and because of the necessity of returning all bags to the manufacturer. Bags not returned are charged against the user of the material, thereby entailing additional expense. All paper bags are not suitable, and it is proposed, therefore, to determine the needs of these industries, so that the most suitable paper may be secured.

This work has progressed to the point where all the laboratory physical testing has been completed and tabulated, but so far there are certain factors still undetermined that make it inadvisable for the Paper Laboratory to attempt at this time, any conclusions of a definite nature. Several new tests are being devised for the purpose of clearing up the points as yet undecided. As soon as the laboratory has been able to satisfy itself upon these points, it is proposed to ask all interested parties, including the manufacturers and users, to meet with representatives of this Paper Laboratory for a discussion of the points involved, so that definite final conclusions may be reached.

This country has recently seen an unprecedented rise in the cost of all grades of paper, caused by unusual demands for paper and a shortage of many raw materials entering the finished paper. This demand for paper and the lack of an adequate supply of raw materials has forced many additional manufacturers to look to the use of waste paper for an extra supply of paper pulp.

The processes now in use are not the most efficient and therefore result in destroying a large per cent. of the old paper used. It is a well known fact that high temperatures and strong chemicals have a rapid solvent action on the papers being cooked. Cases have been seen where old papers were cooked at pressures as high as 75 pounds per square inch. Such a high temperature cannot help but cause a very much weakened fiber, also the complete disintegration of the finer patricles. This action of disintegration is so pronounced that it is possible to readily distinguish under the microscope all papers that have been partly made from paper stock at high temperature, and with strong chemicals. The average loss in cooking old paper stock is considered to be about 35 per cent., and cases have been encountered where the loss was over 50 per cent. The problem relating to the recovery of old papers is one of vital importance and it is now under consideration. It is proposed to try out several of the new processes now on the market, also a study of the correct conditions for cooking old paper in a rotary boiler or an open tank cooker. The results of this investigation will also be of assistance in a similar problem in the cooking of rag stock.

During the past year more than half of the entire Paper Laboratory has been devoted to the testing of routine samples for the government service, as follows: For the Government Printing Office and the Government Departments, 3,518 samples; for public and private interests, 80; total number tested, 3,598.

The Bureau has been called upon by the several departments and other branches of the Government service to assist in the preparation of definite specifications covering many general needs, and also for specifications for paper for special uses. Work of this kind is continuous, as each year changes are made to meet the growing needs of the service. Continuous expert assistance of this kind is rendered to the Congressional Joint Committee on Printing, the General Supply Committee, and the Post Office Department.

The inquiries received requesting information relative to the pulp and paper industry have covered the widest possible range. Such inquiries have dealt not only with all phases of the testing of paper and pulp, but also with many phases of the manufacturing end of the industry.

The following list includes some of the more important inquiries received, as well as others noted, to show something of the range of these inquiries:

(1) Report to one of the central western universities covering a series of tests on 25 samples of commercial bond papers, which brought out the fact that some of the lower priced papers were among the highest in quality.

(2) Report on the causes of deterioration of the adhesive used in making certain envelopes supplied to the Government service; also suggestions by which an envelope manufacturer was enabled to overcome this difficulty. The Bureau always endeavors to offer its assistance to a manufacturer who is having trouble with his Government deliveries, as it is the belief that any assistance to a Government contractor tending to improve his deliveries to the Government will also have a beneficial effect on his product when sold to the commercial trade.

(3) Requests for standard samples and specifications and also many special papers of all kinds have been received, with the request that a specification for their purchase be prepared. Inquiries of this kind have covered the entire range of kinds and grades of paper.

(4) Information and assistance have been rendered in answer to inquiries on many subjects concerning paper. Some of these inquiries have resulted in investigations of considerable extent. Such questions as the manufacture of filter paper, photographic paper, blue print paper, parchment paper, and dialyzing paper have been handled.

Attention has also been given to the utilization of certain waste materials, due to the large number of such inquiries continually being received.

Many visitors have visited the paper laboratory, showing a general awakening on the part of both the user and producer of paper to the need for definite paper specifications.

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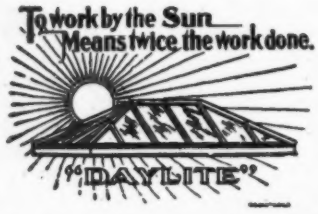

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THE CORNISH CHINA CLAY INDUSTRY 1916

Specially Written for the Annual Number of the Paper Trade Journal

The end of another khaki year is now in sight, and the china clay industry can once more look back upon the part it has played with a feeling of satisfaction and pride. It has subordinated all interests to the national cause. It has enlarged its responsibilities and at the same time a large proportion of the export trade has been maintained. Unlike the great industrial strike period of 1913 which disorganized everything for the time being, when the great revival of trade which followed the peaceful solution materially made up for the loss sustained.

Some months of 1916 have been the busiest for the china clay producers since the war, and the shipments have been considerably heavier than the most sanguine could expect under such existing circumstances. During the first six months of 1916 the shipments of china clay to America alone amounted to over 140,000 tons, which is not far from the normal exportation. In July the shipments were even more brisk, but since then there has been a gradual decline. The falling off in exports to America is not unusual in summer months, as the United States consumers rarely take in more stocks than is necessary in the hot seasons as during other parts of the year. The whole of the industry has now been depleted of all its eligible clay workers, excepting a very few in the indispensible positions.

The unprecedented rise in the price of coal, together with a general increase in the wages of all the clay workers, have naturally increased the cost of production very considerably and have rendered the position of the Cornish china clay merchants anything but an enviable one. Freights to America have fluctuated a good deal and there has been a greater demand for boats all through the year than the exigencies of the government could possibly allow, but the clay producers generally have borne all their inconveniences without a murmur.

Through the reduction of so many skilled clay workers great difficulties have been experienced in transmission. Notwithstanding all this, however, the North Cornwall China Clay Company of S. Breward were most successful in many large cargoes to the States. One parcel of over 5,000 tons was dispatched without the least interference of the charter, but it necessitated the hearty co-operation of the railway and port officials as well as their own employees.

The returns of exports of china clay during the past three years provides interesting reading and shows how the industry is being maintained. In 1913, the year of the clay strike, 598,428 tons of china clay were sent to foreign countries, which were valued at £695,994; in 1914 505,965 tons were exported, valued at £697,838, and in 1915 it dropped to 298,231 tons, representing £360,641 sterling. An analysis of these figures conclusively shows how the clay industry has been hit by the war. The exports have dropped by one-half what they were in normal times. Apart from the significant effect Germany has upon the figures, the exports to America are very much below what they were before the war. In 1912 the export of clay to America was 252,383 tons, and in 1915 they were 205,993 tons, and this year the American orders have been considerably less.

To show how much the Cornish clay industry is dependent upon the export trade the report of the Inspector of Mines for 1914 states that the total output of china clay and mica from Devon and Cornwall amounted to 859,381 tons, while the exports for the same year were 628,650 tons. The difference between output and exports represents the home consumption of about 230,761 tons. So roughly speaking the export trade is about three-fourths of the entire output. The position of the china clay industry of Cornwall must not be judged as an industry by what is happening, as many are inclined to do, as there is even in the above returns reason for a hopeful reflection for the future. The countries of the world, including the United States of America, have not purchased china clay in such enormous quantities in the past simply because they would buy them, but because they required it and there is even in this no reason for the gloomy prophecies of some that this industry will never again be as prosperous as it was before the war. It is evident that the stocks abroad have been very largely depleted and that there will be an unprecedented demand when the war is over to make up the leeway is generally anticipated.

In response to an influential deputation to the Board of Trade the clay industry have gained some concessions in regard to shipping to America, and have also obtained some valuable additions to the lists of certified occupations as exempted trades. The captains of the works, enginemen, pitmen and drying kilnmen are also exempted from military service. At one time it was felt that the china clay trade would be practically dead during the war, but such views have not been as yet realized, and a great recovery of the past is anticipated in the New Year. The shipments to America, as we have already indicated, have reached a very respectable amount, and apart from its effect on the locality where it is derived this enormous export has had a great influence on the question of exchange which has gone a long way of impressing the Board of Trade upon the importance of affording the utmost encouragement for its efficient maintenance.

Now the clay trade has secured the recognition of the more efficient of its employees as in reserved occupations the question of wagoners for the cartage of clay has become no slight problem. Since the outbreak of war something like 50 per cent. of the teams which were on the road are no longer available for the carriage of china clay and coal. A great many carriers sold their horses not only because of the good prices obtained, but because it looked as if the clay industry was doomed. Now the shipments are decidedly improving the industry is somewhat retarded through a lack of carters.

The new railway branch line which is being constructed into one of the chief centers of the china clay industry ought to facilitate the transmission of orders of several firms. The distance is not more than two miles from the S. Austell station on the Great Western Railway's main West of England line, and when completed some time in the New Year about twenty clay works will be linked up to this railway connection and a considerable amount of traffic of wagons through the town of S. Austell will be obviated.

The past year will be notable for the reintroduction of women into the labor ranks of the clay workers. At Gothers China Clay Works, S. Dennis near S. Austell, the well-known firm of Messers. H. D. Pochin & Co., of Manchester and S. Austell are being credited with its initiation. This is by no means the first time that women have played an important part in the china clay process. Years and years ago there were as many women as men employed in the clay works. They were chiefly engaged in working the lever pumps and scraping lumps of clay after it had been sun dried on the surface sand pits. When coal was first introduced into the industry for drying the clay the kilns were constructed so small that when there was no shipping the women were useful in wheeling the clay to other sheds. It is remarkable, however, that since the installation of modern machinery such as

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Our Boards and Papers lie flat, hang straight, and register because they are made right.
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Cylinder Moulds and Dandy Rolls made and Repaired
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THOMAS E. GLEESON INC

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THE FINEST WIRES
FOR TISSUE AND FINE GRADE PAPERS

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Scandinavian-American Trading Company

PRODUCE EXCHANGE BUILDING, NEW YORK

IMPORTERS AND EXPORTERS OF

FOREIGN AND DOMESTIC

WOOD PULP

OF ALL KINDS
AND
PAPER MILL SUPPLIES

HANS LAGERLÖF, PRES.

APPLETON Woolen Mills

APPLETON, WIS.

MANUFACTURERS OF

Paper Makers' Felts and Jackets

CORRESPONDENCE SOLICITED

the Cornish Pumping Plant, which raises between 300 and 450 gallons of liquid clay per minute to the surface from a depth of nearly 200 feet, and a more rapid winding machinery for hauling the sand and other refuse from the pits that women labor dropped entirely out of the industry. Now in the nation's extremity women have once again turned their sympathies to the staple industry of mid-Cornwall and several bright-faced and bonnie lasses are now engaged in washing with a large hose which has been specially made and which is stoutly armored with steel to give it a great forcing capacity and enable it to convey a copious supply of water to the sides of the clay pit, with the result that the clay and mica speedily becomes disintegrated.

The power is usually derived by gravitation, but in some cases where this is not possible the water is forced by motive power. This system, which was condemned not so long ago, is becoming generally adopted. It facilitates the washing process very considerably and saves a considerable amount of labor. This firm had not long decided upon the inovation than they were inundated with the fair aspirants, and since then the North Cornwall China Clay Company of S. Breward have introduced women labor and also Messers. North & Rose of S. Austell with very satisfactory results.

The past year has also been significant for a suggestion to amalgamate the whole industry and to carry on the whole business from one central authority so as to avoid unnecessary competition, which at present exists. There are already several associations in existence, but neither of these seem to deal with the present situation, and without some new clauses are introduced very little will evolve from the experiment. The matter has not received any consideration yet from a general standpoint.

Among those in the china clay industry no man has worked harder in the nation's interest than Mr. T. Medland Stocker, J. P., the chairman and joint managing director of the West of England and Great Beam China Clay Company, Limited, the premier firm of the clay trade. Since his father's death some twelve years ago, he has jointly controlled this great establishment with his cousin, Mr. Harry Stocker. He has traveled in all parts of the world in the interest of his firm, and has, for a young man, achieved a conspicuous position in the commercial life of mid-Cornwall. No man in the clay trade has worked so zealously for his country than he. He has received the warm appreciation of the Admiralty and the War Office for the great energy he has displayed and the success with which he secured large numbers of men for the A. S. C. Laborers, and also the pioneer companies. When the appraisement of the value of the work done by the S. Austell clay merchants a high estimate is sure to be placed on the work done by Mr. T. Medland Stocker, J. P. There is Colonel W. T. Lovering, also the head of Messers. John Lovering & Co., the well-known china clay and stone producers of S. Austell, who has been the chief recruiting officer for S. Austell and district since the war began. This gallant officer has been interested in the military life of the district for many years, formerly as commanding officer to the old Artillery Volunteers, and latterly as principal officer in command of the National Reserve, the whole of which are now on military service in various parts. It is evident that few recruiting officers have labored more dextrously for their country's welfare than Colonel Lovering in spite of his manifold commercial activities, and he too has certainly merited the high appreciation which has been put on his services to the old country.

There is another prominent china clay merchant who is rendering significant services to the nation at the present time in the person of Mr. H. S. Hancock, J. P., the chairman of the Sanskel Urban District Council. In addition to leading the administrative affairs of the town he is also the predominating personality in the education of the rising generation as the chairman of the Governors for the Higher Education and also chairman of the District Elementary Education Committee, one may easily judge the high position that Mr. Hancock is placed and very few gentlemen indeed are better adapted than he is for such an exalted position, and he is in the truest sense of great advantage to his country. His only two sons are serving their country whilst Miss Hancock, his only daughter, is heartily engaged in various patriotic movements.

Mr. Hancock is the manager for the firm of Messrs. Thriscutt & Bale, proprietors of the well known Caudledown china clay works near S. Austell and in this capacity he has attained a high reputation for his integrity.

Mr. J. W. Higman, J. P., principal of Messrs. J. W. Higman & Co., of S. Austell, is another gentleman who has given the district the benefit of his unique experience as a District Councillor and chairman of the S. Austell Rural District Council, and he is now serving his country as a member of the S. Austell Tribunal. Mr. Higman's only son is a lieutenant in France and one of his daughters is engaged as a Red Cross nurse in one of the large provincial hospitals for the wounded.

This article would not be complete if mention was not made of Lance Corporal Broad, a member of the Cornish Yeomanry and also a clay worker before enlistment. For the performance of a gallant act at Sulva Bay, Lance Corporal Broad has won the distinction of the V. C. and among the many brave deeds that will some day be made known, the heroism displayed by the Cornish china clay merchants and clay workers in this great conflict, the action of Lance Corporal Broad will be one of the outstanding features. In conclusion it is hoped that the business relations which have been going on now so many years with the Cornish china clay industry will never diminish, but will soon be throbbing with greater activity than has as yet been known and the new year will be one of the most memorable to both users and producers of this world wide commodity.

J. N. HAHN COMPANY TO MAKE IMPROVEMENTS

The J. N. Hahn Company, of Watertown, N. Y., with mills on Sewall's Island, has just undertaken the installation of improvements at the plant that will more than double the capacity. This mill turns out container board, and when the new additions are made and equipment installed will have a capacity of sixty-five tons daily.

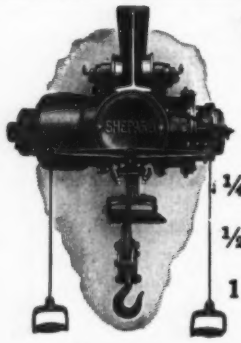
A new machine has just been completed by the Bagley & Sewall and the Mills Machine companies and is here ready for installation. The work of placing foundations, etc., is now under way. This machine has a width of 106 inches. The mill now has a 96-inch machine, which has recently been remodeled to increase its efficiency by a third.

A large store room has just been built. Materials have been ordered and plans are ready for the further improvement and enlargement of the plant. In the plans are a new screen room 90 x 16 feet in dimensions, four additional boilers, two steam engines, an extra finishing room and a machine shop. The company bought the old Cylinder Paper Company property and is well provided with space on which to expand.

Sulphite, sulphite screenings, some ground wood, waste papers and manilla are the raw materials used, and slight difficulty has been experienced in securing these supplies. The concern is now operating at full speed to keep abreast of the orders and the market is abundant.

CREPE TISSUE MEN MEET

The crepe tissue paper manufacturers held a meeting Monday afternoon to consider the question of forming a new association. After some discussion they decided not to organize separately, as their interests are too closely knit with those of the other members of the Tissue Paper Manufacturers' Association.



¼ Ton
½ Ton
1 Ton

Form 2XS

Your New Hoist for Light Loads

The constant demand made upon us for a small hoist embodying SHEPARD features, prompted us to add this sturdy little hoist to our line.

This hoist has all the salient features of our established line, including Balanced Drive insuring permanent alignment, Oil Bath Lubrication throughout by means of combining the supporting element and enclosures, accomplishing economy of weight, material, and compactness.

Write today for Hand Book H-4---you'll find it very interesting

Shepard Electric Crane & Hoist Company

Office and Works MONTOUR FALLS, N. Y.

New York Philadelphia Chicago Pittsburgh
San Francisco Montreal Birmingham London

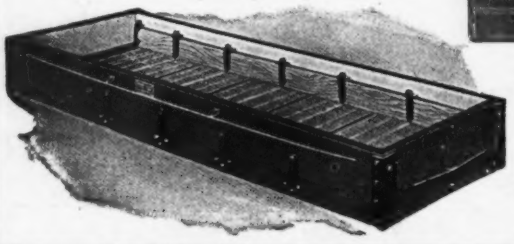
WATER SOFTENING OR FILTRATION

FOR BOILER FEED AND ALL INDUSTRIAL USES

WM. B. SCAIFE & SONS CO. PITTSBURGH, PA.

UNION SCREEN PLATE COMPANY

FITCHBURG, MASS., U. S. A.
LENNOXVILLE, P. Q. CANADA



UNION BRONZE (Best phosphorized Cast Metal) **SCREEN PLATES** ROLLED BRASS (Union Quality)

Old Plates RECLOSED and RECUT to accurate gauge.

UNION BRONZE SCREWS for Screen Plates

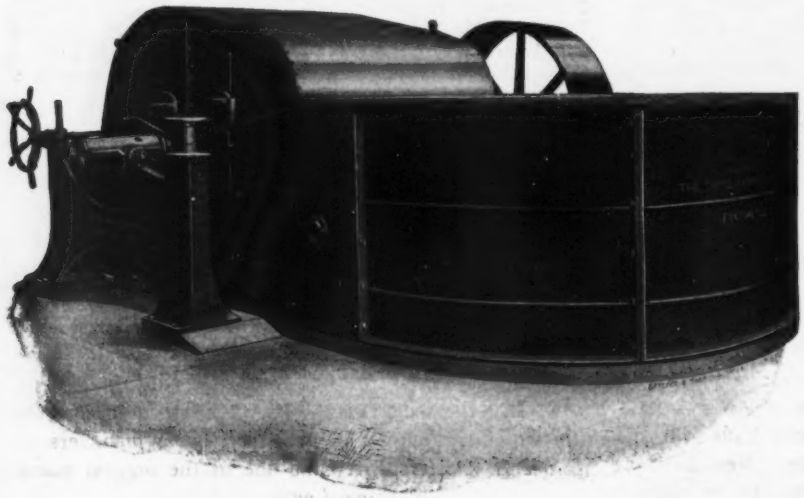
UNION BRONZE SUCTION BOX PLATES

Immediate Delivery of the Largest Orders. Satisfaction Guaranteed.

The WITHAM SCREEN PLATE FASTENER, Patented

THE ORIGINAL — Over One Thousand in Successful Operation

THE BEST — Recommended by Screen Makers



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MACHINE KNIVES

We have been making a Specialty of BEATING and WASHING Engines for many years.

Our Knife Department for the past Fifty years has been making a Specialty of Quality MACHINE KNIVES for Paper and Pulp Mills.

Specialization makes for excellence.

We solicit your inquiries.

A HISTORY OF PAPER MANUFACTURING IN THE UNITED STATES

BY LYMAN HORACE WEEKS,

Author of "An Historical Digest of the Provincial Press," "Legal and Judicial History of New York," "Prominent Families of New York," "Book of Bruce," etc.

This History Will Be Printed in Weekly Installments in the PAPER TRADE JOURNAL Over a Period of Several Months; It Will Give a Comprehensive Account of the Industry of American Paper Making from the Establishment of the First Mill in 1690 Down to the Present Day and Will Be a Most Valuable Contribution to the Industrial Literature of This Country.

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CHAPTER FIFTEEN

(Concluded)

New York had no near rival in number of mills or importance and value of product. Its one hundred and sixty-two paper-mills had a daily capacity of 4,636 tons of all kinds of paper. Twenty-three mills alone could produce nearly 2,000 tons, principally news. The several mills—paper and pulp—of the International Paper Company; the Knowlton, the Taggart and the Remington plants; the Saratoga county mills of the West Virginia Pulp and Paper Company; the mills of the Gould Paper Company; the mills of the St. Regis Paper Company; the Dexter Sulphite Pulp and Paper Company, and others; were impressive factors in maintaining the industry in the State at a high point of efficiency.

EDWIN R. REDHEAD.

JOHN F. KING.

J. A. OUTTERSON.

B. B. TAGGART.

Foremost in capacity for news were the Glens Falls, one hundred and forty-two tons; the Finch Pruyn & Co. mill, one hundred and five tons; the Tidewater mill in Brooklyn, one hundred tons; the Niagara Falls, one hundred and fifty-nine tons; the Fort Edward mill, one hundred and thirty-three tons; the Hudson River mill at Palmer, two hundred and sixty-two tons; the De Grasse mill at Pyrites, one hundred and sixty tons, and the Woods Falls mill at Watertown, one hundred and seventeen tons. Next in line were the thirty board mills, with daily capacity of about 1,200 tons. Most of these were small, producing less than fifty tons a day, but two were large, the mill of the Piermont Paper Company, one hundred and seventy-five tons daily and the mill of the Tonawanda Board and Paper Company, one hundred and fifty tons. And the mill of the Racquette River Paper Company of the Sisson family, with daily capacity of seventy tons of manilla envelope, express and parchment, was listed in the front ranks.

The Goulds, controlling the Gould Paper Company and the St. Regis Paper Company, became active and influential in paper-manufacturing in Jefferson and Lewis counties. Their St. Regis mills, in Deferiet, Black River and Herrings, had a daily capacity of one hundred and sixty tons of news, twenty tons of manilla, twenty tons of board, two hundred and forty tons of ground-wood, and one hundred and sixty tons of sulphite-fibre; the Gould mills, in Lyons Falls and Port Leyden, had one hundred and thirty-five tons of news and eighteen tons of manilla, with five pulp-mills equipped with twenty grinders for ground-wood and three digesters for sulphite. The St. Regis also owned fifty-eight thousand acres of timber land for pulp purposes. In December, 1916, the Goulds sold their interests in this company to another group of wealthy financiers.

James A. Outterson became one of the biggest manu-

(Continued on page 317)

PILGRIM BOND

A LEADER IN ITS CLASS

Our unusual Natural Resources enable us to produce BONDS, LEDGERS, AND WRITINGS both Loft and Machine dried that are exceptional in both price and value.

EASTERN MANUFACTURING COMPANY

New York Office
200 FIFTH AVENUE
Fifth Avenue Bldg.

BANGOR, MAINE
DAILY OUTPUT { 75 TONS PAPER / 100 TONS SULPHITE

Western Office
FORSYTHE-HARDING PAPER CO.
Chicago, Ill.

The Ashcroft Paper Tester

The Ashcroft Thickness Gauge

Actual necessities for all those who make, sell or purchase paper in any form.
The thousands in daily use testify to their efficiency.

THE ASHCROFT MFG. CO.

119 West 40th Street, New York
29 North Jefferson Street, Chicago, Ill.
141 Milk Street, Boston, Mass.

HUGH R. BLETHEN

21 Park Row, NEW YORK, N. Y.

FOR PAPER AND PULP MILLS

TRAVELING CRANES
OVERHEAD TRAMWAY SYSTEMS
TROLLEYS and CHAIN HOISTS

Air Compressors—Air Hoists
Electric Hoists

ESTABLISHED 1842

FOURDRINIER WIRES

DANDY ROLLS
CYLINDER
MOLDS

CHENEY BIGELOW WIRE WORKS

Springfield, Mass.

MANUFACTURERS

Brass, Copper and Wire Cloth,
Bank and Office Railings and Grille Work

A HISTORY OF PAPER MANUFACTURING IN THE UNITED STATES

(*Continued from page* 315)

facturers in the Black River section at this time. He was president of the Carthage Sulphite Pulp and Paper Company, the Champion Paper Company, the West End Paper Company and the De Grasse Paper Company, his four plants having a daily capacity of nearly two hundred tons of news and boards, nearly one hundred tons of ground-wood and sixty tons of sulphite-fibre.

The famous Remington mills finally passed out of the Remington family possession. In 1915 a receiver was appointed for the property which, late in 1916, was sold to new owners, prominent among whom and holding a controlling interest, were Daniel R. Hanna and his sons.

The ninety-five pulp-mills of the state had a daily capacity of about 3,500 tons, of which 2,400 tons was ground-wood and nearly nine hundred tons sulphite-fibre. Most of this pulp was made by paper-mill companies for their own use, comparatively little being sold outside. There were eleven pulp-mills that manufactured for the market but their output was not large, about one hundred and fifty tons daily. The mills of largest capacity were in Cadyville, Corinth, Cohoes, Deferiet, Fort Edward, Glens Falls, Hudson Falls, Herrings, Hinckley, Lockport, Mechanicsville, Niagara Falls, Norfolk, Palmer and Watertown.

Expansion of paper-making at Niagara Falls, N. Y., began after 1850. Mills on Bath Island had been operated with more or less success from 1823, but no particular attention had been given to the utilization of the water-power there running to waste. In 1852 Stoughton Pettebone purchased a part interest in the Bath Island plant from L. C. Woodruff and work was carried on by the firm of Woodruff & Pettebone until 1883 when the firm was dissolved and the Pettebone Paper Company incorporated with Stoughton Pettebone, L. B. Pettebone, John Quigley and others as stockholders and officers. When Bath Island and adjacent property was taken by the state of New York for a park reservation the Pettebone Paper Company, in 1884, built another mill on the banks of the hydraulic canal where it ever after continued. Prior to this there had been a pulp-mill on the river bank, built and operated by Hill & Murray but afterward owned by C. B. Gaskill, J. J. MacIntire and others, incorporated as the Cataract Manufacturing Company. In 1892 the Pettebone and the Cataract companies consolidated and formed the Pettebone-Cataract Company which was still in existence in 1916, running both the paper-mill and the pulp-mill.

One of the earliest promoters of pulp-making at Niagara Falls was John F. Quigley. In 1877 he built a pulp-mill and made about four tons a day. Eleven years later a paper-mill was added to the plant and Arthur C. Hastings, who had come from Rochester, was installed as manager. After a time the owners of the plant incorporated as the Cliff Paper Company and, in 1892, the business was sold by Mr. Quigley to J. F. Schoelkopf, Arthur Schoelkopf, Henry Grigg, W. D. Olmstead, George B. Matthews and Arthur C. Hastings, who gradually expanded the property into the establishment as it was existing in 1916.

Early in 1891 the Niagara Glazed Paper Company, promoted by Henry M. Robertson, C. B. Gaskill and others, came into existence, to make, principally, glazed, lithographic, label and coated papers and box boards. In 1896 the company was succeeded by the Niagara Surface Coating Company, of which John C. Tammerts was the principal owner, but that in time went out of existence. Another early mill in Niagara was that of Allan & Jones which, in 1880, was taken over by the Niagara Wood Paper Company with Walter Jones as manager, and machinery for making boards was then added.

In 1892 the Niagara Falls Paper Company was organized by Lewis A. Hall, J. L. Norton, D. O. Mills, J. C. Morgan and others and a plant was built that was then considered one of the most complete in the world. The company developed its own water-power, and had seven thousand two hundred water horse-power and two thousand three hundred steam horse-power. It installed one one hundred and thirty-seven-inch and five one hundred and twenty-two-inch Fourdriniers and was able to turn out one hundred and twenty-five tons of news every twenty-four hours. In addition there was a sulphite mill of forty tons daily capacity and a ground-wood mill of sixty tons capacity. Twenty-five years after this starting the plant was still in as full and effective operation as when it began, the largest in production in Niagara Falls, and a part of the International Paper Company.

New Jersey had fallen largely into the line of board manufacturing. Of the forty-six mills in the state twenty-three were, in whole or in part, devoted to boards and out of a total of one thousand tons daily capacity nearly seven hundred were of boards. The remaining product of three hundred tons was mostly in manilla, felting, tissue, building and other varieties. No news and very little book was made. The largest plants were those of the McEwen Brothers, in Whippany, one hundred and ten tons of boards daily; the mill of the H. W. Johns-Manville Company, one hundred tons daily of asbestos and felt, and the two mills of the United Paperboard Company in Whippany, ninety tons daily.

Pennsylvania was the third state in number of mills and amount of product. It had seventy-one paper-mills with daily capacity of about 2,000 tons. Eleven mills had capacity of from fifty to one hundred and forty-five tons and one—the Philadelphia Paper Manufacturing Company—could make two hundred and eighty tons of board every day. The property of the New York and Pennsylvania Company, of which Colonel A. G. Paine was long the responsible and successful head, consisted of two large plants in this state, in addition to a mill in New York, where

(*Continued on page* 319)

SKF

Swedish Steel BALL BEARINGS Self Aligning

QUALITY

The accuracy and superior workmanship with which S K F Self-Aligning Ball-Bearings are made makes them especially efficient for Paper Making Machines. This is so because they are made of Swedish Crucible steel and have two rows of balls that automatically align themselves to any shaft deflection or spring. Especially in the Paper Making Industry they have met the most exacting service requirements and have demonstrated that all types of Paper Making Machinery can be speeded up with every assurance of being bearing trouble-proof.

Specify S K F for "Quality and Service"

SKF
Ball Bearing Co.
HARTFORD
CONN.

MADE IN SWEDEN

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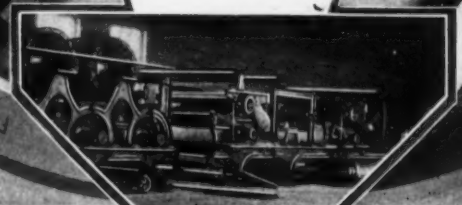
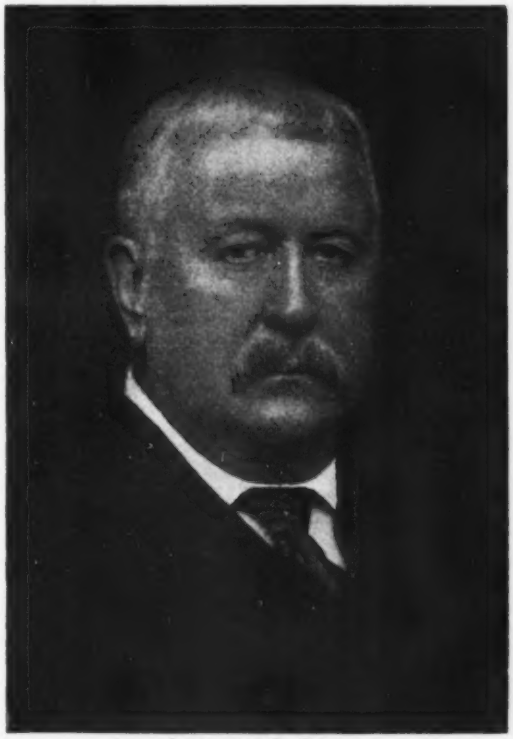


A HISTORY OF PAPER MANUFACTURING IN THE UNITED STATES

(*Continued from page* 317)

fifty tons of soda-fibre were daily produced. The Johnsonburg mill, with eight machines and a capacity of one hundred and forty-five tons a day of bond, book, envelope, writing and other varieties, had with it two pulp-mills, one of ninety tons daily capacity of soda-fibre and the other of seventy-five tons of bleached sulphite. The mill in Lock Haven, with six machines and daily capacity of seventy tons of book, writing, cover, hardware and other varieties, had a pulp-mill of sixty-two tons soda-fibre daily.

The mill of the Hammermill Paper Company, in Erie, ranked among the foremost establishments in the country in the production of bond, ledger, superfine and writing. It was equipped with five Fourdriniers and had a daily



AUGUSTUS G. PAINE.

capacity of one hundred tons. Another notable mill was the Delaware of the Dill & Collins Company, in Philadelphia, with five Fourdriniers and a capacity of forty tons daily of book and coated, and an accompanying pulp-mill for making twenty-three tons of soda-fibre daily. Other large establishments with their daily capacities were: the Bayless Manufacturing Corporation, seventy tons of bag and kraft; the Frank P. Miller Paper Company, one hundred tons of boards; the H. F. Watson Company, one hundred and twelve tons of felt and building; the John Long Paper Company, eighty tons of roofing; the Nixon Flat Rock mills, sixty-two tons of book; the West Virginia Pulp and Paper Company's two mills, one hundred tons of book, writing and other fine papers; the York Haven Paper Company, seventy tons of fibre and express papers. Nearly one-third of the product of the state was book, writing, bond, ledger, linen, lithograph, and other papers in that class.

Another relic of old-time paper-making that has remained until contemporaneous time is the little West Branch mill in Barto, Penn. It is a baby affair compared with even the ordinary modern establishments, equipped with three beating engines and one forty-inch cylinder and daily producing only three thousand pounds of wrapping. As a date inscribed on the gable end of the stone building gives evidence the first structure, which was only twelve by twenty feet and produced four hundred pounds of paper a day was built in 1776. It passed through the hands of various owners during its century and a half of uninterrupted activity and in 1916 was operated by Isaac C. Yoder, who began working in it thirty years before.

Pennsylvania's fifteen pulp-mills had a daily capacity of seven hundred tons, of which fully six hundred and eighty-five tons were soda and sulphite-fibre, each about one-half. Among the largest pulp-mills were those of the York Haven Paper Company, the West Virginia Pulp and Paper Company and the Bayless Manufacturing Company.

In Delaware the plant of the Jessup & Moore Paper Company preserved the traditions of Wilmington on the Brandywine as a paper-manufacturing locality from the time of the famous Gilpin mill there before 1800. The two mills—the Augustine and the Rockland—had a daily capacity of over sixty tons of book, while the Delaware pulp-mills furnished a like quantity of soda-fibre.

There has always been one solitary mill in the District of Columbia. Succeeding to that distinction, the District of Columbia Paper Manufacturing Company was making twenty-five tons a day of blotting, cover, book and specialties in 1916.

Maryland became a more important paper-manufacturing state after the civil war. In 1886 twenty-nine mills were in operation, in Bentley Springs, Chestertown, Conowingo, Easton, Elkton, Ellicott City, Fairhill, Freeland, Grove Run, Hagerstown, Hoffmanville, Houcksville, Manchester, Morgan, Parkton, Reisterstown, Rising Sun and White Hall. Few of these mills were of much importance. The largest were: that of the Susquehanna Water Power and Paper Company in Conowingo, daily capacity, twelve tons book and news; *The Public Ledger* mills of George W. Childs in Elkton, daily capacity, four tons of news; the Providence Paper Mills of William M. Singerly in Fairhill, daily capacity, ten tons of news; the Chestertown mill, daily capacity, six tons of straw board; the Talbot County mill in Easton, daily capacity, six tons

(*Continued on page* 321)

Wash-up Time is Waste Time

It surely is when washing up means one or more shut-downs daily, for operating costs go on and the profits are lost on the paper that would have been made.

Long Strings Under the Screen Plates

QUESTION No. 2375.—Can you suggest a remedy for the following? We are forced to lose much time on our machines through having to shut down every day to wash the screens on account of the nature of the stock that we run, causing long "strings" to form under the screen plates. Only for this drawback we could easily run the week out with but one wash up, which would do for the felts.

ANSWER No. 2375.—The slots in your screen plates may be corroded, thereby causing your fibres to catch and string up. Remedy —Pick out the screen plates. Perhaps screen plates with larger slots would suit your fibres better. Mechanical screen scrapers are a very good preventative for strings under the screen plates. An ideal arrangement in cases of your kind is to have two sets of screens, whereby you can run your stock into a fresh, clean screen every morning, or when needed without shutting the machine down. The dirty screen may then be washed thoroughly and be put in A1 condition for the following day. According to your own statement this would be a saving of about five hours' machine time every week. At that rate your extra screens would soon pay a nice little bonus. New patent screens are constantly coming on the market which make claims that it is unnecessary to wash them during the week. It might pay you to investigate some of these.

Kraft Paper

ON No. 2376.—Ca[illegible]ou tell me how many [illegible]cks of calen-

This mill wants to run the week out with but one wash-up. Why not without any wash-up? The

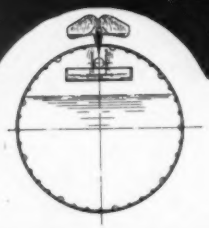
Bird Rotary Screen

operates continuously without stopping for wash-up because it is an inward flow rotary; a continuous shower keeps the screen plates clean.

The Bird Rotary Screen that runs the whole week without washing up saves the cost of a spare screen and saves the floor space it takes up.

It is regularly made in capacities of 20 to 40 tons, so that one screen will supply enough stock for almost any paper machine, and two screens will supply the largest paper machine.

It will pay every paper maker as well as Questioner No. 2375 to investigate the Bird Rotary Screen



Showing continuous shower which keeps the screen slots clean *all the time*

Bird Machine Company

EAST WALPOLE, MASS.

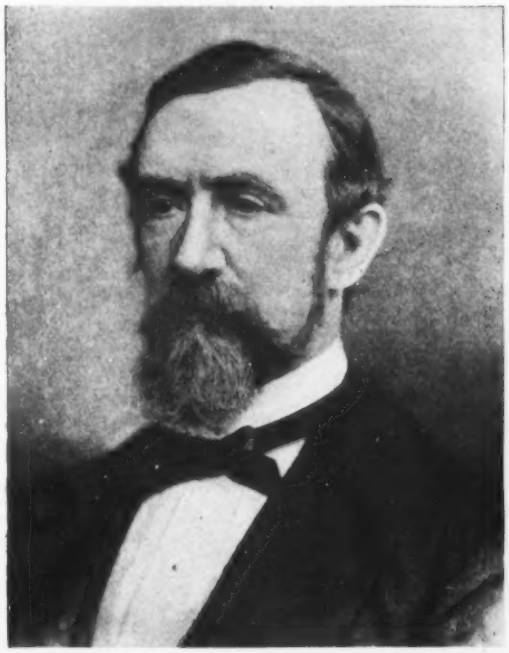
Showing deep immersion which insures great capacity in small units

88-9

A HISTORY OF PAPER MANUFACTURING IN THE UNITED STATES

(*Continued from page* 319)

of straw board, and the Woodbine in Morgan, daily capacity, five tons of straw wrapping. Fully one half the product of all the mills in the State was straw wrapping. Several of these mills lasted into the twentieth century: those of the Youngs in Bentley Springs, the Chestertown straw-board mill, the Antietam in Hagerstown and the Gunpowder in Parkton. In 1916 there were in Asbestos, Baltimore, Bentley Springs, Chestertown, Childs, Elkton, Freeland, Hagerstown, Luke, Parkton, Providence, Rowlandville and White Hall, thirteen paper mills and two pulp mills. The product was asbestos, felt, carpet-lining straw and other boards, straw and other wrapping, hanging,



BLOOMFIELD H. MOORE

manilla, book, writing and roofing. The total daily capacity was one hundred and eighty-two tons of book, one hundred and sixty-two tons of other papers and one hundred and fifteen tons of soda fibre. Of this total, one hundred and thirty-seven tons of book, writing and other paper and seventy tons of soda fibre were the output of the West Virginia Pulp and Paper Company in Luke. Next in quantity of product was the Baltimore Roofing and Asbestos Company with forty tons of asbestos paper and twenty-five tons of wool felt daily. The Jessup & Moore Company turned out daily forty-five tons of soda fibre from the Radnor pulp mill in Elkton and from their Kenmore mill forty tons daily of book and writing.

In Virginia there were ten paper-mills, five pulp-mills and one combined pulp and paper-mill. The paper-mills were capable of producing three hundred tons daily, of which the mill of the West Virginia Pulp and Paper Company, at Covington, was credited with ninety-five tons of book and lithograph and the Bedford Pulp and Paper Company, at Big Island, with seventy-five tons of ticket paper. The pulp-mills could produce two hundred and twenty-six tons daily, the West Virginia Company making one hundred and twenty tons sulphite, the Bedford Company thirty-nine tons of ground wood and the Columbian Paper Company sixty-seven tons of soda fibre. In West Virginia, in 1875, mills existed in Halltown, Shepardstown, Wellsburg and Wheeling, but, in 1916, the five paper-mills and five pulp-mills were in Davis, Halltown, Harper's Ferry, Parsons, Richwood and Wellsburg. The daily capacity of the paper-mills was one hundred and twenty-five tons of board, bag and specialties and of the pulp-mills one hundred and thirty-five tons of sulphite-fibre and forty-eight tons of ground-wood. The leaders were the Parsons Pulp and Paper Company, with sixty tons of sulphite-fibre daily and the West Virginia Pulp and Paper Company, with forty-five tons of sulphite-fibre.

After the civil war paper-manufacturing was tentatively resumed in the south. About 1870 there were several Georgia mills in Savannah, Atlanta, Athens, Conyers and Newnan and one on Soap's creek near Atlanta. Either by fire or by bad luck all, except two, soon went out of existence. In those days news sold for fourteen cents a pound and there was a profit on it of about four cents a pound. Saxe Anderson bought the mill on Soap's creek, added a pulp-mill and improved the plant; this was the beginning of the Marietta Pulp Company. About 1895 the same company bought an old mill in Atlanta and converted it into a mill for making paper.

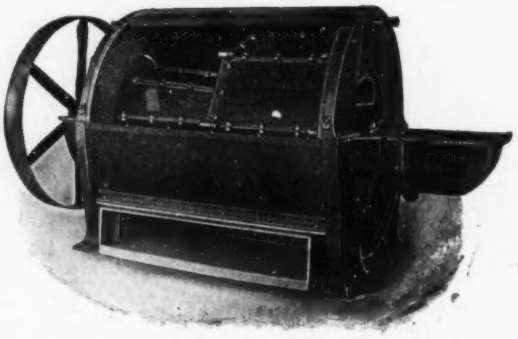
When the twentieth century opened mills in the far southern States were: the Stevenson pulp, Stevenson, Ala.; the Pensacola, Pensacola, Fla.; the Fulton, Atlanta, Ga.; the Conyers, Conyers, Ga.; the Marietta, Marietta, Ga.; the Sewall, Whitesburg, Ga.; the Fall City, Louisville, Ky.; the Wheeling, Wheeling, Mo.; the Carolina, Hartsville, S. C.; the Chattanooga Pulp, Chattanooga, Tenn.; the Stone Fort, Manchester, Tenn.; the Tennessee Fibre, Memphis, Tenn.; the Oak Cliff and the Cumberland, Sugarland, Texas. In conjunction with these paper mills there were five ground-wood pulp mills and three sulphite mills. The total daily output of all these establishments was insignificant. It amounted to twenty-six thousand pounds of ground-wood pulp, thirty-four thousand pounds of sulphite pulp, twenty-four thousand pounds of cotton kull fibre, fifty-nine thousand pounds of manilla, thirty thousand pounds of book, two thousand two hundred pounds of straw board, eight thousand pounds of straw

(*Continued on page* 323)

"IMPROVED" KNOTTER

for the first screening of sulphite, sulphate or ground wood pulp.

We shall be glad to furnish data and samples of the work this machine will do in actual use.



The cost of power and upkeep is extremely small and the results are very satisfactory.

Knotter Design No. 2

WE ASK A THOROUGH INVESTIGATION

IMPROVED PAPER MACHINERY CO.

NASHUA, N. H., U. S. A.

F. C. HUYCK & SONS ALBANY, N. Y.

Manufacturers of Kenwood Felts and Jackets for all kinds of Paper and Pulp.
Seamless Felts both for high speed machines and fine papers.

A HISTORY OF PAPER MANUFACTURING IN THE UNITED STATES

(*Continued from page* 321)

board and sixty-two thousand pounds of book, news, hardware, straw, roofing and manilla wrapping.

By 1916 Alabama, Florida, Kentucky and Missouri were no longer paper-manufacturing States. In South Carolina the Carolina mill remained; in Tennessee, the Tennessee Fibre and the Kingsport Pulp; in Texas, the Oak Cliff; in Georgia the Pyntree, Kennesaw and Lawrenceville in place of those of 1900. North Carolina, Louisiana and Mississippi were new paper-manufacturing States. In

E. L. Embree.

F. L. Moore.

North Carolina were the Champion Fibre Company in Canton, with daily capacity of 28,000 pounds of boards, 250,000 pounds of soda fibre and 250,000 pounds of sulphite fibre; the Halifax and the Roanoke Fibre Board in Roanoke Rapids, producing boards, sulphate fibre and ground wood. In Mississippi were the paper division of the Great Southern Lumber Company and the Louisiana Fibre Company both in Bogelusa and both producing container lining and sulphate pulp. Also in Louisiana, in Braithwaite, was the idle ground-wood mill of the Colonial Paper Company and the paper mill and sulphite mill of the E. Z. Opener Bag Company.

Wisconsin from late beginnings turned into the twentieth century as one of the leading states in the industry. With its fifty paper-mills in 1916 it ranked only after New York, Massachusetts and Pennsylvania and with its forty-seven pulp-mills was next after New York. The mills produced all kinds of paper, news, book, writing, bond, wrapping, tissue, manila, kraft, parchment, hanging, boards and specialties. Their daily capacity was 1,900 tons. The pulp-mills had a daily capacity of 1,000 tons of ground-wood, eight hundred tons of sulphite-fibre and one hundred tons of sulphate-fibre.

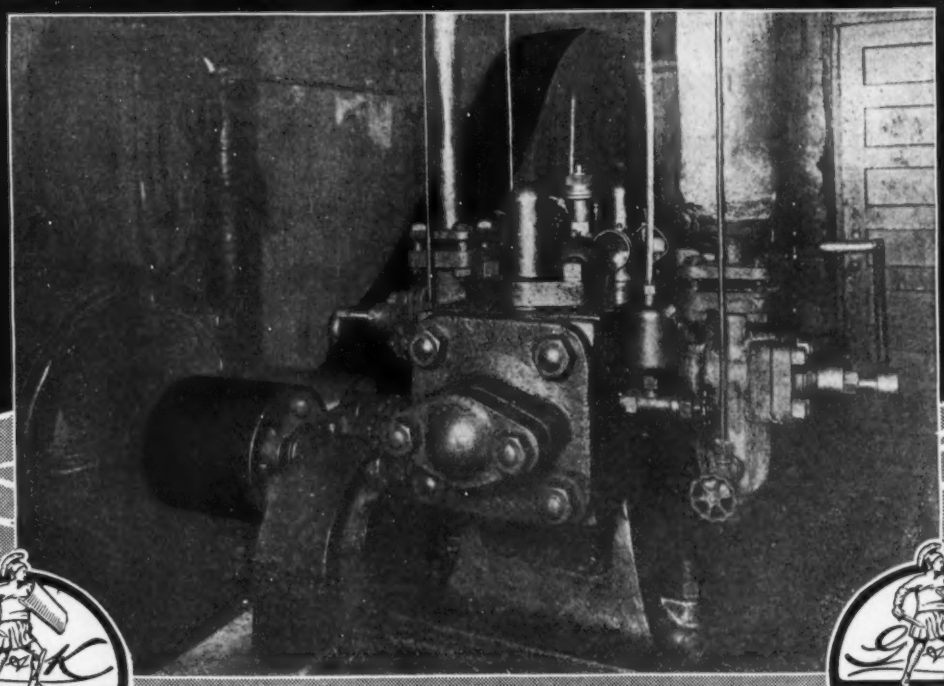
Foremost among the Wisconsin concerns was that of the Kimberly-Clark Company, the outgrowth of the energy and business foresight of J. A. Kimberly and Charles Clark. From 1872 until his death, in 1891, Mr. Clark was a conspicuous figure in Wisconsin paper-manufacturing. The company was incorporated in 1907, with J. A. Kimberly as president. Its properties in Appleton, Kimberly, Neenah and Niagara were seven paper-mills with daily capacity of about two hundred and seventy tons and three pulp-mills with daily capacity of nearly two hundred tons. Other notable Wisconsin concerns that contributed much to the record of the state in the making of paper and pulp were the Riverdale Fibre and Paper Company of Appleton; the Thilmany Pulp and Paper Company, with mills in Appleton and Kaukauna; the Menasha Paper Company, with pulp and paper-mills in Ashland and Ladysmith, producing daily fifty tons of paper and one hundred and twenty?five tons of ground-wood and sulphite; the Nekoosa-Edwards Paper Company, producing daily one hundred and sixty tons of paper, eighty tons of ground-wood and one hundred and fifteen tons of sulphite-fibre; the Marathon Paper Mills Company of Wausau, with daily capacity of seventy-five tons of paper, twenty tons of ground-wood and one hundred and thirty-five tons of sulphite.

Forty-eight paper mills in Michigan had a daily capacity of nearly 2,000 tons and nine pulp mills, three hundred and fifty tons, all but one hundred tons being sulphite and sulphate-fibre. The character of product covered the widest range, from news, book, writing and bond to board, wrapping, manilla and many specialties. Among the big plants were the fourteen mills of the Bryant Paper Company, two hundred and fifty tons daily, of book, magazine and other high grade papers; the two mills of the Bardeen Paper Company, sixty tons daily of book, writing, wrapping, etc.; the two mills of the Eddy Paper Company, one hundred tons daily, mostly in boards and cards; the Grand Rapids mill of the American Box Board Company, one hundred tons daily; the mill of the Boehme & Rauch Company, one hundred and fifty-seven tons daily, paper boxes and containers; the mill of the River Raisin Paper Company, one hundred and twenty-five tons of boards; the MacSim Bar Paper Company, one hundred and ten tons, book and boards. Kalamazoo was the paper-manufacturing center. Thirteen mills were there and their capacity was more than a quarter of that of the entire state.

Minnesota's nine paper-mills had a daily capacity of six hundred and fifty tons and her nine pulp-mills, six hundred and twenty-five tons. Of the paper most was news and book to the amount of about four hundred and seventy tons of which the two mills of the Northwest Paper Company had one hundred and five tons; the big mill of the Minnesota & Ontario Power Company, two hundred and twenty-five tons and the mill of the Watab Pulp and Paper Company, ninety tons. The Waldorf Box Board Company added one hundred and twenty tons of board daily.

(*Continued on page* 325)

SPARTAN



SPARTAN

SPARTAN

BELTING

Driving Gas Compressor at Hotel Planters, Chicago, Ill.

Driving pulley 11½ inch diameter, 610 R. P. M. Driven pulley 79 inch diameter, 8 inch Lenix Idler, 8 ft. between pulley centers. 85 H. P.

CHIEF ENGINEER KLEIN says:—

—"The Spartan Belt that you furnished for our twenty-five ton gas compressor is as good as new. We have run same about eighteen months about sixteen hours per day.

"The belts we used before we had yours put on run us about eight months; yours is good for a number of years more."

It's the pliability of Spartan Belting and its power of resistance to unusual operating conditions that make it the compressor belt of unequalled success. These same qualities assure you the utmost service from Spartan Belting—whether used on compressors or exposed to steam, water, oil, or other adverse conditions.

In short, Spartan is the belt for all difficult drives. Evidence of this is found in the new Spartan Book. It's a small book, but it shows Spartan Belting operating under a great variety of conditions. You will be interested to receive a copy, and it's yours for the asking.

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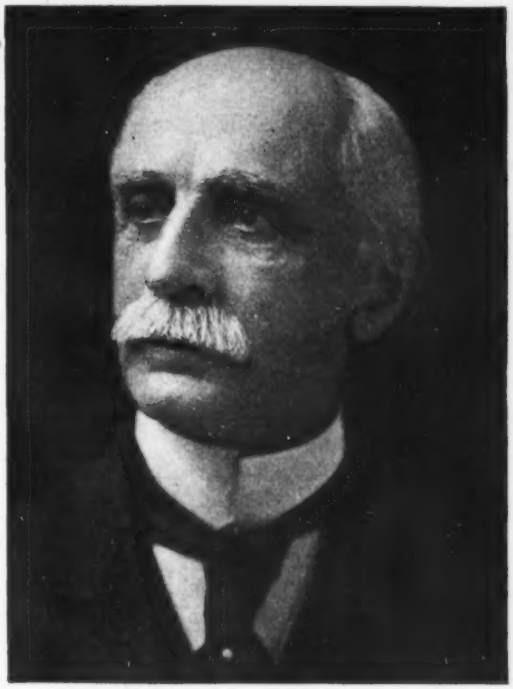
A HISTORY OF PAPER MANUFACTURING IN THE UNITED STATES

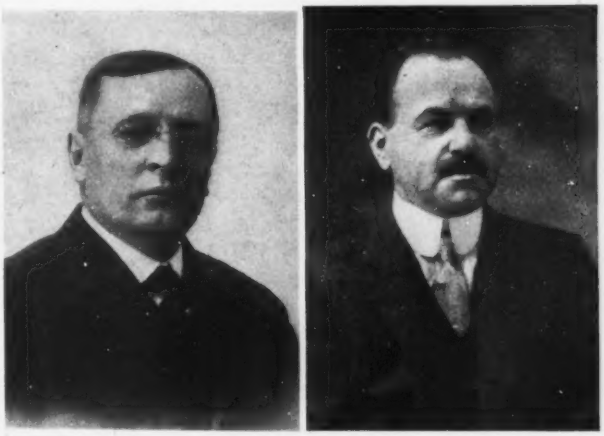
(*Continued from page 323*)

In Ohio, with fifty paper-mills, eleven were run on bond, ledger, linen, writing, book and other fine papers, their daily capacity being about six hundred and twenty tons. The largest producer in this class was the Champion Coated Paper Company of Hamilton, with ten machines and daily capacity of two hundred and sixty-two tons. Then came the Miami Paper Company, one hundred tons and the two mills of the Mead Pulp and Paper Company, one hundred tons. Other mills of this kind were small, producing from ten to thirty tons daily. News was made in one mill only and there it divided, with book, fifteen tons a day. Mills, devoted, either wholly or in part, to board and wrapping, were twenty-four in number, producing daily six hundred tons. Of these only seven were of much size: The Lockland of the Richardson Paper Company, one hundred and fifty tons; the Hartje, in Steubenville, one hundred tons; the mill of the Ohio Box Board Company, in Rittman, one hundred and ten tons; the two Gardner mills in Middletown, one hundred and sixty-five tons; the three mills of the Fox Paper Company, seventy-five tons. The three active mills of the American Straw Board Company had a daily capacity of one hundred tons. The total productive capacity of all the paper mills in the state was 2,000 tons a day, while the three pulp-mills could produce forty-four tons. Nearly one half the mills of the state were in the Miami valley, in Dayton, Franklin, Middletown, Hamilton and other places.



J. A. KIMBERLY.

Illinois found its vogue mostly in straw, fibre and other boards. Of the twenty-nine mills in the state nineteen were devoted, in whole or in large part, to that kind of paper, their combined daily capacity being over nine hundred tons. In other lines, principally roofing, sheathing, wrapping, bag and manilla the daily capacity of the other mills was about two hundred and fifty tons. Like its neighbor, Indiana also found advantage in making various kinds of boards, seventeen of its mills having daily capacity in that line of a little more than two hundred tons, while the others, given over principally to wrapping, straw for corrugating, parchment and specialties, produced about two hundred and fifty tons daily. Book, news and writing was made in two mills. The four mills in Iowa were for roofing, wrapping and board, their daily capacity being nearly eighty tons. Kansas likewise, with four mills, produced only board, building and straw corrugated paper.



G. E. BARDEEN. E. R. BEHREND.

Of six mills in California one only produced news, while from that and the others came manilla, tissue, wrapping, boards, bristol, sheathing, felts and other varieties. The daily capacity of the six was 514,000 pounds. The Crown Willamette Paper Company, of which Wm. Pierce Johnson was president, had the news and tissue producing mill, and in connection therewith were pulp mills with daily capacity of 40,000 pounds of ground-wood fibre and 50,000 of sulphite fibre. The largest producers were the California Paper and Board mills, 200,000 pounds daily, and the Southern Board and Paper Mills, 110,000 pounds daily. Also on the Pacific coast in 1916 were other enterprises of the Crown Willamette Paper Company. These were three paper-mills and eight pulp-mills with

(*Continued on page 327*)

Which may we send FREE to YOU?

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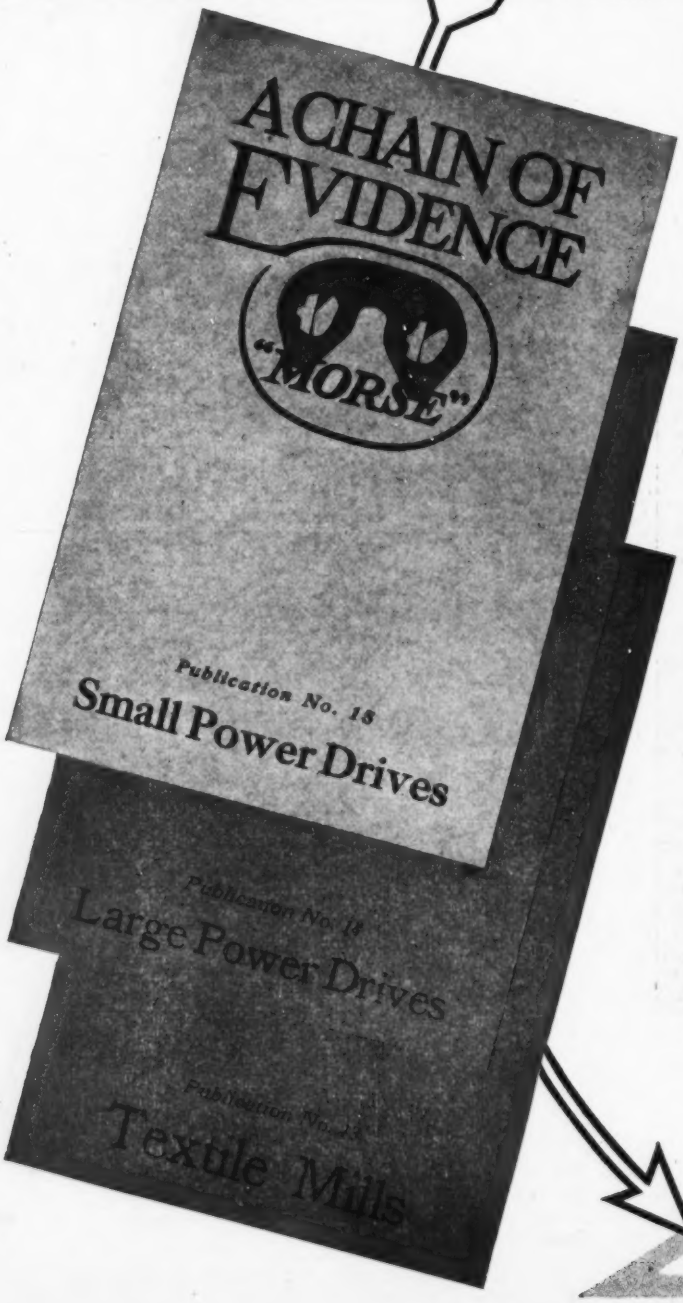

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In simple terms, a silent chain drive to either machine, line or countershaft is—

(1) Positive in action (the same as is gearing).

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(3) 98% to 99% efficient throughout its life (a saving of 2% to 20% in power, compared to gearing and belting).

(4) Quiet in action (but without the slip of belting).

(5) Not affected by heat, cold or moisture.

(6) Very reliable (no necessity for frequent tinkering and repairing, as with belting, nor frequent and copious lubrication, as with gearing).

Of the several makes of chains of the "silent type," the MORSE Chain is the one *different* chain—the exclusive "Rocker-Joint" construction setting it clearly apart from all other makes, and, as the service evidence seems to show, well above every other make in actual value (efficiency, durability and economy) to the user.

Each of the three bulletins illustrated opposite tells the complete story of the MORSE Silent "Rocker-Joint" Chain.

You may have one or all of them, without obligation of any kind, simply for the asking. Do it now.

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Sales Offices and Representatives in many important cities throughout the world.

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MORSE CHAIN COMPANY ITHACA, NEW YORK

A HISTORY OF PAPER MANUFACTURING IN THE UNITED STATES

(*Concluded from page* 325)

daily capacity of 400,000 pounds of news, 110,000 pounds of manilla, wrapping, etc., 220,000 pounds of ground-wood and 180,000 pounds of sulphite fibre; and, in Washington, one paper-mill with daily capacity of 360,000 pounds of news, manilla, etc., and one pulp mill with daily capacity of 140,000 pounds of ground-wood and 175,000 pounds of sulphite fibre. With the two paper mills and the two pulp mills of the Hawley Pulp and Paper Company in Oregon and in Washington, the Everett, the Inland Empire and the Northern Board paper-mills and the Everett soda-fibre mill the Pacific coast was well provided.

This broad review of the industry in 1916 may here fittingly bring its history to a conclusion. It has been a long way to travel, and the changes in the two hundred and twenty-five years that have been passed in retrospect, have been many and of surpassing interest. Altogether there is an amazing comparison between the solitary Rittenhouse mill of 1690, worth a few hundred dollars, employing three men, producing annually, perhaps, fifteen hundred reams of paper and supplying only the needs of a small community and, at the other end of the line, the great business of the twentieth century. The first mills made little else than news, book and writing paper, fullers' press-boards and bonnet-boards, and those in limited quantities. The mills in the United States in 1916 made two hundred and fifty different kinds of papers, while the articles manufactured from paper as their raw material numbered several hundred. The seven hundred establishments of 1916, with paper and pulp mills, represented an investment in capital of more than $550,000,000; employed 100,000 persons; afforded business opportunities to thousands of others in the handling of their product; were the main support of hundreds of other enterprises manufacturing machinery and supplying raw materials; had a daily capacity of about 20,000 tons of paper, and annually produced to the value of nearly $350,000,000.

GEORGE A. WHITING.

(THE END)

COLONEL FRAMBACH IN LOS ANGELES

Word was received in Appleton, Wis., last week by friends of Col. H. A. Frambach, stating that he has decided to make Los Angeles, Cal., his future home city. He has purchased a piece of real estate and has awarded a contract for the construction of a $25,000 home, work on which will be commenced at once. In the meantime the Colonel and Mrs. Frambach will spend their time in various cities of California. Announcement of his selling his interests in the Cheboygan Paper Company at Cheboygan, Mich., was made in these columns some weeks ago. The Colonel has disposed of all of his paper and pulp interests and plans to live a retired life from now on. Another of Wisconsin's paper and pulp manufacturers, who, like Col. Frambach, got his start in Kaukauna, has announced his retirement from active life. Luther Lindauer has decided to make Hollywood, Cal., his future home. He and Mrs. Lindauer are now in the West, and word received here last week indicates they are about to close a deal for the purchase of a $30,000 home. Mr. Lindauer during the last year has disposed of all his paper and pulp interests in Wisconsin save only one small plant he still owns in Kaukauna.

AN ACCIDENT—BUT NO DELAY

Recently an accident occurred to one of the machines in the plant of Samuel W. Moore & Sons, Inc., Newark, N. J., and this accident brought out a most interesting point concerning the bearings.

The machine in question was a special paraffining machine used in the manufacture of paraffined paper containers. It operates at a temperature of from 200 to 250 degrees F., and is giving excellent satisfaction. The top shaft was accidently hit and bent to an angle of 10 degrees.

When the accident occurred it was feared that a new shaft would have to be inserted immediately, thus causing a tie-up of the whole plant for two days while the repair was made.

On investigation, however, the machine was found to be in perfect running order. The bent shaft was mounted on self-aligning ball bearings, manufactured by the S. K. F. Ball Bearing Company, and these bearings carried the bent shaft perfectly because the self-aligning feature compensated for the bend.

The machine is completely equipped with these self-aligning ball bearings.

NEW COMPANY FOR PAPER MILL

A press dispatch from Petoskey, Mich., says: Articles of incorporation for the Northern Michigan Pulp Company were filed today with County Clerk Madlem. News that such a firm was being organized reached this city some days ago but plans under which it will operate have not been announced.

The new corporation was organized in Boston with three stockholders, Robert W. Fernald, Louis Cole and Clarence G. Guild. The latter two men hold ten shares each of common stock, while Mr. Fernald holds 480 shares of common and 250 shares of preferred stock, all of par value of $100. $50,000 has been paid in cash.

The name of the company reads "The Northern Michigan Pulp Company, of Petoskey, Mich., and Boston, Mass." The company will maintain offices in Michigan at Petoskey and Grand Rapids.

It is reported that the new firm will take over the Petoskey plant and continue its operation. It is also anticipated that the plant will be greatly enlarged and perhaps another plant erected.

TO SAVE MONEY ON PAPER

WASHINGTON, D. C., February 7, 1917.—The Senate last night passed the so-called Chilton bill, which aims to save about $500,000 annually on printing, of which amount about $200,000 is for paper. The bill was printed in full in a recent issue of the PAPER TRADE JOURNAL.

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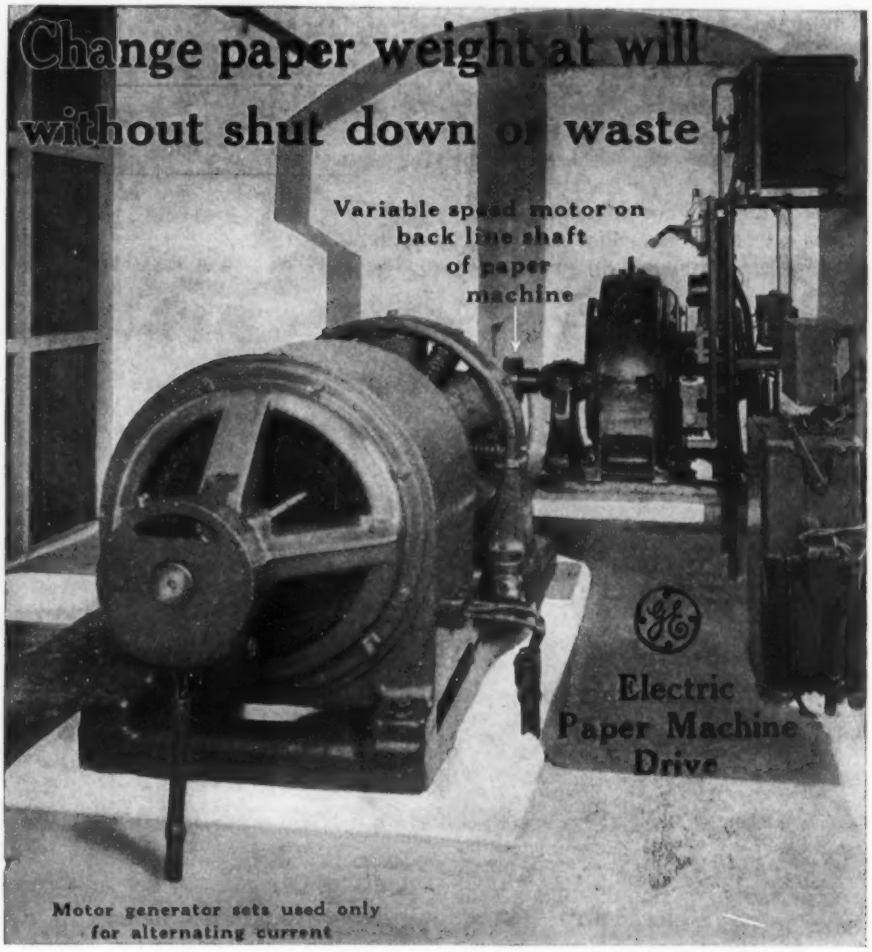
Youngstown, Ohio

For MICHIGAN business refer to General Electric Company of Michigan, Detroit, Mich.

For TEXAS, OKLAHOMA and ARIZONA business refer to Southwest General Electric Company (formerly Hobson Electric Co.) Dallas, El Paso, Houston and Oklahoma City.

For CANADIAN business refer to Canadian General Electric Company, Ltd., Toronto, Ont.


Change paper weight at will
without shut down or waste
Variable speed motor on back line shaft of paper machine
Electric Paper Machine Drive
Motor generator sets used only for alternating current

With G-E electric paper machine drives a change in paper weight is accomplished by turning a small handle to one of 130 different speed points while the machine is running—result, change is accomplished practically without waste

In Use 8 Years—Practically No Maintenance Cost

The G-E electric paper mill drives have been in use at prominent paper mills for eight years and their maintenance cost has been practically nothing

General Electric Company

General Office: Schenectady, N. Y.

6066

METHOD AND APPARATUS FOR SIZING PAPER

Process Patented by Henry M. Wheelwright

A method of and apparatus for sizing paper has been invented by Henry M. Wheelwright, of Ware, Mass., who has been granted patent No. 1,195,888.

The principal objects of this invention, says Mr. Wheelwright, are to provide an improved method of treatment during the manufacture of paper, whereby one wetting, and consequently one drying, of the web will be eliminated, thus reducing the cost of manufacture, the size of the plant, and the time required, as well as doing away with the well-known difficulties encountered when

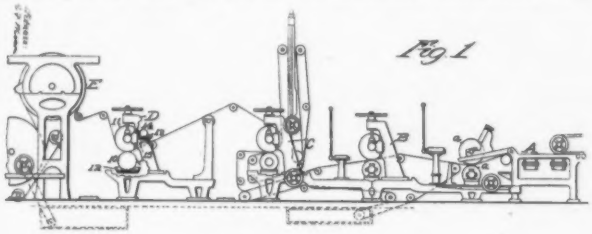


Fig 1

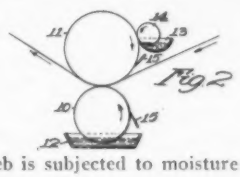


Fig 2

a previously dried web is subjected to moisture on the paper machine and consequently swells.

Fig. 1 is a side view partially diagrammatic in form of a well-known type of paper-making plant arranged for carrying out this method, and Fig. 2 is an enlarged view of the apparatus constituting a part of this invention.

Heretofore, paper has been made, for example, on a Fourdrinier machine, then subjected to the wet pressing process, drying and calendering and thereafter sized by immersion in a size in a suitable tub. This, of course, wets the paper and necessitates a further drying. If the paper is to be subjected to the size after it has been completely dried, immersion is the most convenient and inexpensive way of doing it. The stock cannot be immersed in the size before it is dried, because it is not in sufficiently firm condition to stand wetting at that time and it would all go to pieces under such treatment. I have discovered, however, that the stock can be sized, especially by means of feculose or thin boiling starch compounds, during its travel from the paper-making machine to the driers, provided this size is applied to the surface of the web without immersing the web in a body of liquid. In order to do this I subject the web to all the wet pressing operations to which it is usually subjected, and apply the size during the last wet pressing operation. I find that this is a practical and efficient way of sizing the paper, that when the sizes above mentioned are employed in this manner and at this stage of the paper-making process the size will not stick to the drying drums and not become injured in any way by the drying operation, and it will be obvious that this does away with the rewetting of the web after it is dried and entirely eliminates the subsequent redrying operation usually necessitated in making sized paper.

I have shown the invention as applied in that type of paper-making in which the pulp passed through a Fourdrinier machine A of any desired type. It passes as usual from the couch rolls *a* to the first wet press B, from there to the second press C, and in ordinary practice by this time about fifty per cent of the moisture has been squeezed out of the stock, but it is still a comparatively weak paper because it has not been subjected to any drying or calendering operations.

I have shown herein the third wet press D to which the paper is next directed and this is illustrated more in detail than the others, because it is the only element of this apparatus which is changed by this process. In this press there is a bottom press roll 10 and a top press roll 11. The bottom press roll dips directly, preferably, into a starch bath 12, and there is a starch bath 13 adjacent to the top press roll having a sort of fountain roll 14 dipping into it and engaging the surface of the top press roll 11. I preferably use a scraping blade 15 on each of the press rolls to insure the delivery of a uniform film of size to the surface of the web as it passes between them. It is to be understood that these press rolls accomplish two objects. They act as smoothing rolls for the web in addition to applying the size to the surface thereof. It is to be understood that the web of paper does not have to be supported on a felt while passing through the press D, which, although called a wet press does not extract any appreciable amount of moisture. It is then led to the drying drums E (only a part of which are illustrated herein). It will be understood that with the exception of the extraction of moisture by the wet presses, the entire drying operation is performed after the application of the size.

I have found that the character of the size used is an important factor in the success of this method. The size should be of one of the so-called soluble, or converted hydrolyzed starches or starch compounds, preferably feculose, which is a partial acetate of starch, but the thin boiling starches in general can be used. I prefer to use starch products which yield a gelatin-like film when a 10 per cent to 20 per cent solution is allowed to dry on a glass plate and this is a characteristic of the partial starch acetates commercially known as feculose. This size should be used hot so that it will penetrate the surface of the web to a sufficient degree.

The invention is suitable for use for making paper for off-set printing, for example, when size alone is used; also writing papers can be made to great advantage and many other kinds of surface-sized papers. It will be understood, of course, that colors, loading materials, etc., can be added to the starch for the usual purposes to permit of the use of the method throughout a wider field.

LAKE WINNIPEG PAPER CO., LTD., INCORPORATES

To carry on, in all its branches, a lumber, timber, pulpwood, pulp and paper business, the Lake Winnipeg Paper Company, Limited, has been incorporated at Ottawa, Ont., by the following: Duncan Bingham McDonell, lumberman, Winnipeg, Manitoba; Edward Seybold, manufacturer; Angus William Fraser and Duncan McCormick, barristers-at-law; Walter Goodman Bronson, lumberman; William Harper Connor, accountant, and Christine Matthews, stenographer, all of the city of Ottawa.

The operations of this new concern are to be Dominion-wide with the head office in this city. News of the formation of this company was sent by your correspondent some weeks ago when the hint was given by Mr. McDonell, who was then in the city making the necessary arrangements. The plant of the company is to be located in a very richly wooded portion of the province of Manitoba, tributary to the city of Winnipeg. The output of news print on a large scale is planned with, of course, close attention to the other branches of the industry which at the present time is in the height of prosperity.

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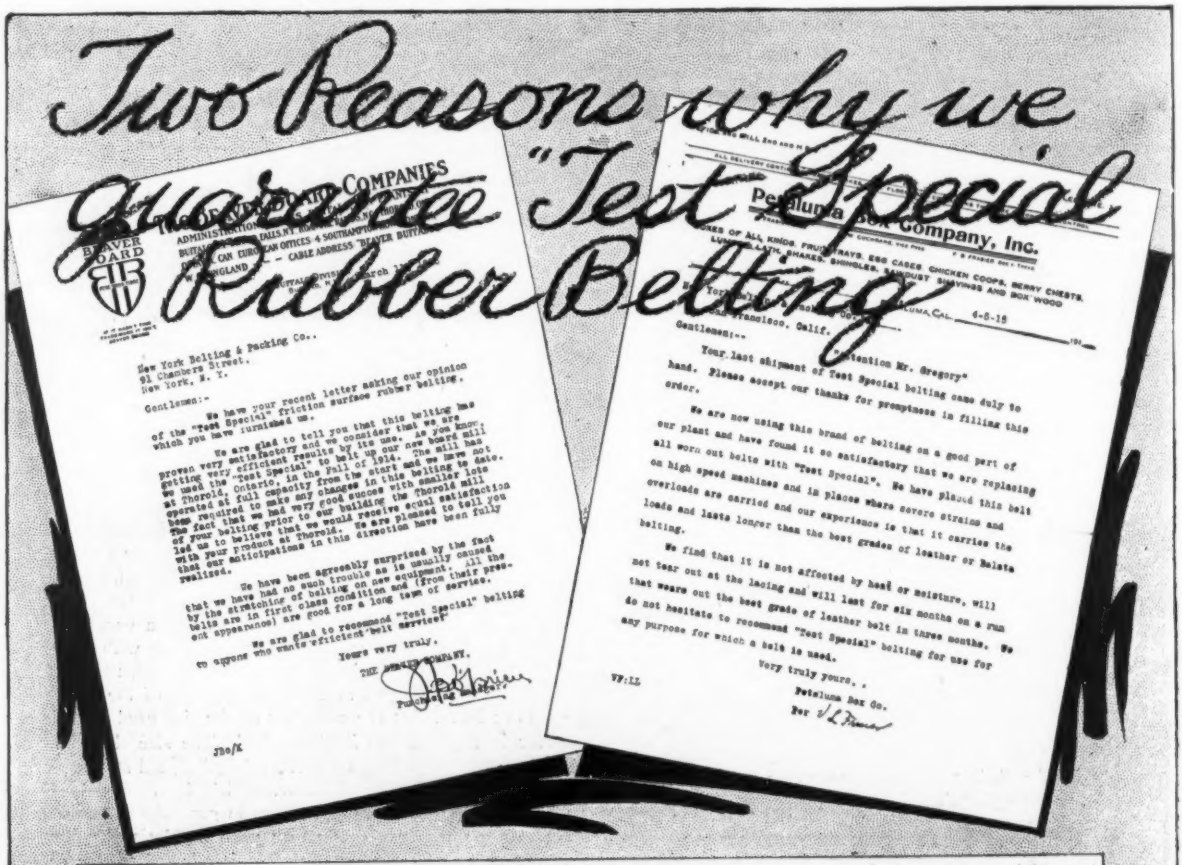
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BOSTON, MASS.....55 Pearl Street
PITTSBURGH, PA.....420 First Avenue
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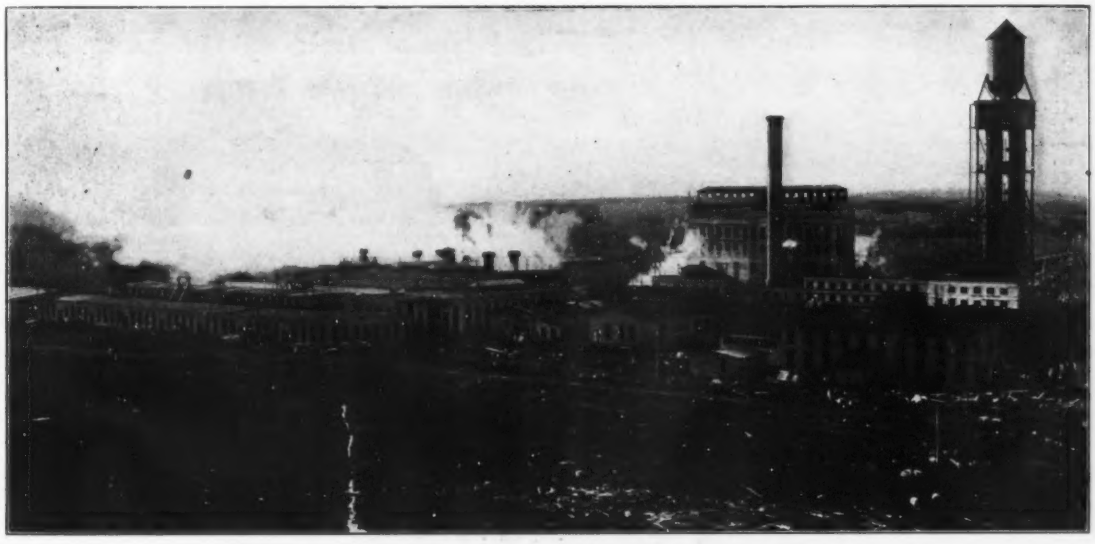
NIAGARA WALL PAPER CO.'S MODERN PLANT

Written for the Annual Number of the Paper Trade Journal

One of the newest and largest industries of Niagara Falls, N. Y., is the Niagara Wall Paper Company, which has just opened its modern mill—one of the most up-to-date wall paper plants in the country. It has been pronounced a triumph of modern wall paper industry by every wall paper man who has inspected it. In the construction of this plant there has been brought together under one roof every phase of production required in the manufacture of wall paper from the wood pulp to the final achievement of the finished wall paper itself. The plant has been equipped with the latest developments in wall paper making machinery, in the printing process, in the coolr mixing and making, in designing the line—and the result is the realization of an ideal wall paper manufacturing establishment that has no equal anywhere.



PLANT OF ANGLO-NEWFOUNDLAND DEVELOPMENT CO.

The Niagara Wall Paper Company is affiliated with the Defiance Paper Company, and the new mill adjoins the plant of the latter firm. This connection and the location will give the new firm important advantages. There is no less of time or cost of transportating the arw stock between the paper mill and the wall paper mill, all the processes being carried on in practically the same plant. Power is supplied by the Hydraulic Power Company.

The Defiance Paper Company, which has been manufacturing paper and wall paper raw stock since 1910, owns forest property in Canada from which it draws a supply of material. The Niagara Wall Paper Company is an outgrowth of the Pittsburgh Wall Paper Company of New Brighton, Pa., which has been in the wall paper manufacturing field for the last 15 years.

The new mill consists of part three and part four story building. The mill has 226,000 square feet of floor space. The building is fireproof throughout. It is of reinforced concrete construction. The ceilings are flat without girders or overhead obstructions. The floors have a finished concrete surface, except in the color rooms and around the wall paper machines, where asphalt mastic is laid.

There are electric elevators and electric lighting. The entire interior is painted with a white moisture-proof enamel. The exterior is finished in red vitrified brick laid in black mortar, while the cornices and trim are of white stone and terra cotta.

ANGLO-NEWFOUNDLAND MILL IMPROVEMENTS

Extensive additions to the sulphite pulp mill of the Anglo-Newfoundland Development Company, Ltd., at Grand Falls, Newfoundland, completed during 1916, were put into operation on December 15. These additions practically doubled the capacity of the mill, and the market for the pulp is so great that further even more important additions are being contemplated for the coming year. The work is in charge of Geo. F. Hardy, as consulting engineer.

The improvements already made are estimated to have cost in the neighborhood of $250,000. They include chiefly the construction of a new blow-pit room, new digester house, boiler house, an addition to the acid tower, a sulphur burner and cooler room, and a new screen room. The digester room contains two Manitowoc sulphite digesters, 52 by 16 feet, which add 60 tons per day to the production of the mill. The new boiler house accommodates three Dillon boilers, 90 by 20 inches.

The mill is now using 198,000 cords of pulp wood per annum, and the entire plant at Grand Falls develops 21,000 horse-power, out of 34,000 horse-power estimated as available. There are already, however, water wheels capable of furnishing 3,000 more than is now being used with the present machinery. The former output of the sulphite mill was 75 tons per day, while the ground-wood mill turns out 240 tons per day.

The illustration presented herewith gives a good view of the additions to the acid tower and the digester house.

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Any desired percentage of

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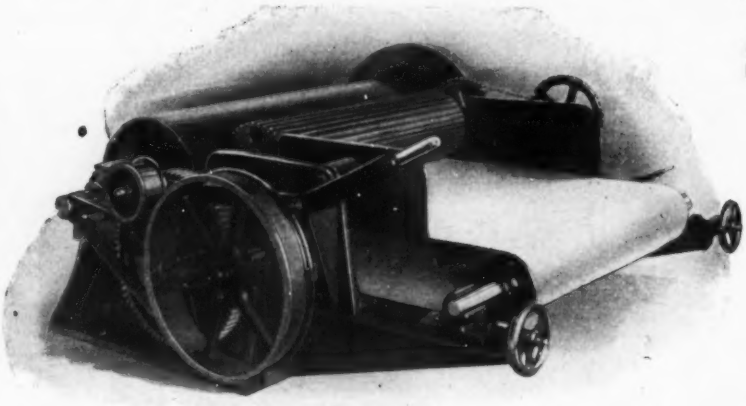

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PAPER-MAKING IN GREAT BRITAIN DURING 1916

Specially Written for the Annual Number of the Paper Trade Journal

During the year which has just come to an end the Paper Makers of the United Kingdom of Great Britain and Ireland have devoted themselves, quietly and without any ostentatious display, to the task of maintaining their industry under war conditions. Their object has been threefold: to liberate every available man of military age, to economize in the use of all raw materials which possess military value, and to secure a continued output of paper sufficient both for government requirements and for the home and export markets. The achievement of these apparently conflicting aims, without any direct government control, would appear almost impossible, but nevertheless it has been attained, and therein lies another instance of the faculty for self-government which forms part of the national character. Theoretical investigations into methods of organization do not attract the British intellect, but the presentation of a practical problem immediately stimulates it into action, the solution being inevitable, even though, to the outsider, its discovery appears to be more or less accidental. Natural growth, rather than mechanical extension, is the secret of British methods.

When the survey of 1915 was written for the New York *Journal*, twelve months ago, the various problems arising from shortage of labor and increased cost of materials had already presented themselves. One factor, however, which was to have an important bearing on the conditions of 1916, was still in the unknown future, and paper makers had no idea that their industry was to be asked to make special sacrifices for the benefit of the nation's transport by sea. This information was disclosed in January, 1916, and, in consequence of the action then taken, the paper-making industry has carried on its operations since that time under specially difficult conditions. In view of the enormous proportion of merchant shipping which was and is engaged in transport in connection with the troops of Great Britain and her allies, the Board of Trade desired to curtail the import of any bulky articles which were not essential for the national well-being, and, casting about for the readiest means of doing this, fixed upon paper and paper-making materials as affording a promising beginning. A royal commission was set up for the control of imports, two of its members being paper makers, and six of them paper buyers, with a government official and an independent chairman, making a total of ten. Import was entirely prohibited except under license from the commission, and the trade waited in anxious expectation for the issue of the regulations under which such licenses would be obtainable. These regulations, which came into force on March 1, 1916, allowed each importer two-thirds of the quantity which he imported in 1914, which was taken as the standard year; and the licenses were to be issued on terms that the importer, in his turn, should supply each of his 1914 customers with two-thirds of the paper supplied in that year if demanded. This proportion remained in force until December 31, 1916; from January 1, 1917, to February 28, 1917, it is reduced to one-half of the 1914 imports, and from March 1, 1917, it becomes five-sixths of the quantity imported in the year ending on February 28, 1917.

It will be immediately obvious, as was pointed out to the royal commission, both before and after the issue of the regulations, that the stipulation as to supplying the 1914 customer might, in certain circumstances, place the paper maker in an impossible position. If all his 1914 customers claimed their two-thirds, and if he had entered into contracts to supply other customers who had not dealt with him in 1914, he would not be able to carry out at the same time his obligations under the regulations and his liability under the contracts. If he disobeyed the regulations, the commission would cut off his supplies; and if he broke his contracts he would be liable in damages at law, which, with the increasing price of paper, would amount to large sums. This dilemma has never been resolved; the good sense of manufacturers and customers and the spirit of mutual concession which rules among us in these difficult times has brought about friendly settlement in most cases. It was, however, a very real difficulty, and added not a little to the thorniness of the paper maker's path.

As the overseas supplies of paper-making materials were cut down, it was obviously only fair that the supplies in the country should be retained for home consumption. A complete schedule of paper-making materials was therefore prepared, and complete prohibition of export was enforced. This prohibition has been slightly relaxed in a few cases where it is found that stocks have accumulated, but it may be assumed that, so long as the British paper maker needs these materials, they will not be allowed to leave the country.

The paper maker was still in a state of uncertainty as to the effect which this compulsory reduction of materials would have upon his trade when a new disturbing element entered into his calculations. The Swedish Government prohibited the export from that country of chemical wood pulp, except under special license, and that prohibition has remained in force, so far as Great Britain is concerned, from January 21, 1916, to the present time. With the reasons for the prohibition, and the further reasons why no effective attempt to remove it has been made, this article has no concern. The fact of the prohibition, with its consequent increase in the price of chemical wood pulp, is the important point for the paper maker. So long as the Swedish source of supply is cut off, the consumer is naturally dependent on alternative supplies, and it may well be that the result of this temporary disturbance of the channels of trade will be of a lasting nature when normal times return.

The imports of chemical wood pulp, of course, showed a great decrease in consequence of the Swedish embargo, only 198,810 tons arriving in 1916, against 433,239 tons in 1914, and the Swedish contribution being 21,776 tons, against 287,969 tons. The average price per ton over the whole year came to £25.16.0, and for December deliveries it was £30, comparing with the 1914 figure of £8.5.0. Mechanical wood pulp, thanks to an increase from 280,178 tons to 338,612 tons in the Norwegian supply, did not show such a substantial reduction, the total being 457,790 tons, against 557,033 tons in 1914. It need hardly be said, however, that the shortage of chemical wood pulp has far-reaching consequenees much beyond those shown by the mere figures of import.

Imports of rags dwindled to 4,776 tons, against 22,224 tons in 1914, but the prohibition of export has largely redressed the balance in this respect, and little inconvenience has been felt among users of this material. Esparto, too, has been fairly abundant in supply, 148,843 tons arriving in 1916, against 183,144 tons in 1914, nor has the increase in cost been proportionate to that of chemical wood pulp, the *average* price per ton being £6.18.0, against £3.19.0 in 1914.

The export trade in paper has continued to show increasing vitality. Writing papers, of which 198,451 cwts. were exported in 1914 and 210,436 cwts. in 1915, rose to 278,542 cwts. in 1916, the corresponding values being £410,755, £424,469, and £797,860. Printing papers, which had dropped from 1,587,521 cwts. in 1914 to

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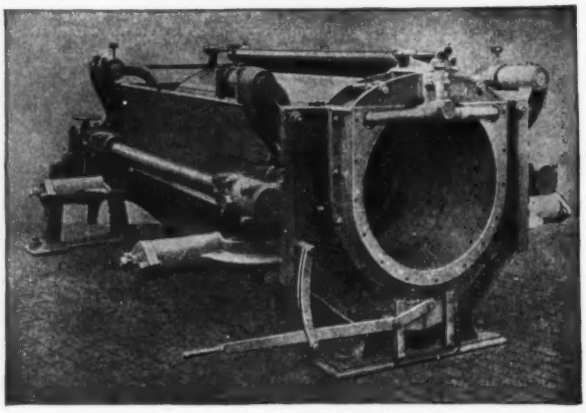

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The advantage of this screen is that it can be adapted with slight change for use in Sulphite mills and where the saving amounts to considerable.

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1,456,579 cwts. in 1915, rose again to 1,567,428 cwts. in 1916, with values of £1,524,660, £1,497,405 and £2,669,747, respectively. The total amount received by British exporters of paper during the twelve months was no less than £5,198,942, which compares with £3,185,939 in 1914 and £2,995,127 in 1915. The only grade in which export business shows a decrease is in packing and wrapping papers, for which the home demand not only absorbs nearly the whole output of the mills, but calls for an import of some 3,000,000 cwts. in addition, of which 1,510,884 cwts. came from Sweden and 1,037,666 cwts. from Norway.

Not only did prices rise against the paper maker in the case of his main raw materials, but also in all the subsidiary supplies necessary for his industry. Dyes, caustic soda, sulphate of ammonia, bleaching powder and china clay have all been a rising maket during the year; coal contracts have been renewed at greatly enhanced prices, rates of wages are necessarily increasing in response to increased cost of living, and overhead charges on a reduced output contribute substantially to a higher making cost. With a smaller output of paper made at increased cost, there can be no surprise at an increase in the price of the product, and this has been the case with every grade of paper. Common news has risen from round about 1*d*. per lb. to 2¾*d*; printing papers, free from mechanical wood, are in the neighborhood of 4½*d*., the cheaper writing papers range from 5*d* to 6½*d*., and fine writings from 7*d*. to 1/-. The tendency to increase of price is still apparent, and he would be a bold man who ventured to forecast the limits of prices for 1917.

Amid all the disturbances which the trade has experienced during the year, the paper makers of the United Kingdom have found time and opportunity to remodel and reconstruct their national organization. The Paper-Makers' Association of Great Britain and Ireland, 1912 (Incorporated), an amalgamation of the Paper-Makers' Association, which was founded in 1872, and the Scottish Paper-Makers' Association, which took shape in 1885, includes in its membership about 90 per cent. of the output of paper in the United Kingdom. Representative organizations of this kind have an increasingly important function to perform in the systemization of British industry, and paper makers, alive to this cardinal fact, have set themselves to give to their association the necessary powers and resources to enable it to act with vigor and authority. Its financial basis has been strengthened by an increase of the subscription list to nearly three times its previous level, and a network of sectional organizations has been created which enables the problems peculiar to every grade of paper to be considered promptly and effectively. The hand-made maker, the fine writings maker, the esparto maker, the mechanical-free maker, the maker of brown wrappings, of glazed casings, of grocery papers, of M. G. papers, and the news-print maker—each of them has his own sectional organization, affiliated to the main association and represented on its committees. It is too early, as yet, to pronounce on the effect of this new machinery of organization, but it is even now obvious that many spheres of utility are open under the new conditions to which the association on its previous basis could have no access.

It is fully recognized in British commercial circles that when the war comes to an end there will be no return to the conditions of trade which prevailed before August 4, 1914. Europe is in process of reconstruction, and States and peoples are developing, under the stress of strife, new capabilities and new characteristics. After the war is over, commerce will flow in new channels, and will be subject to new and untried influences. The inevitable changes in the map of Europe will have their effect on the course of industry, the new balance of financial power must be taken into account, and the increasing tendency of governments to concern themselves with the commerce of the nation will be a determining factor in much of our trade. If the forces of European nations are to be organized for the production of wealth as efficiently as they are now organized for the destruction of life, the end of the war may be the beginning of an era of boundless prosperity. Encouraged by the success with which the nation has grappled with the complications induced by war-time conditions, the British paper maker looks with the fullest confidence to the future of his industry, believing that the problems presented by the coming years of peace will be dealt with no less successfully, and that British industry has been welded, during the last three years, into a weapon which will suffice to maintain the position of the United Kingdom in the markets of the world.

NEWS PRINT REPORT STILL DELAYED

There seems nothing new so far as the news print situation is concerned this week at the Federal Trade Commission.

Officials there have been doing so much "guessing" as to when the report will be made to Congress that this week they even refused to do that.

As to when it will actually be made the only information obtainable is that it "will be out in a few days." This statement is a little old now inasmuch as it has been made for some weeks.

There seems at this time some basis for the rumor current here a couple of weeks ago, and already announced in the PAPER TRADE JOURNAL, to the effect that the report was being held up at the instance of the Department of Justice, to allow that department to complete some investigative work of its own before anything at all was made public.

There has been an intimation during the past week that the Commission had another proposition on whereby it hoped to solve the whole situation, but no one would talk on the matter.

HOW PRICES ROSE IN CANADA IN 1916

The following schedule shows how prices of paper rose in Canada during 1916; the quotations being the ruling ones on the dates mentioned:

From these figures it will be seen that news in rolls advanced 50 per cent. during the year; in sheets, over 70 per cent.; book papers, Manilas, kraft more than doubled; pulp went up from two to three times the price at the first of the year, and paper stock varied from 35 per cent. to over 150 per cent. advances.

Line	1916 January 1	1916 April 1	1916 July 1	1916 October 1	1917 January 1
News, rolls, carload	$1.95 @ 2.00	$2.15 up	$2.50 up	$2.50 up	$3.00 up
News, sheets, carload	2.10 @ 2.20	2.30 up	2.75 up	2.75 @ 3.00	3.75 @ —
Book papers, No. 1, carload	5.00 @ 5.50	6.50 up	8.00 @ 8.50	9.00 @ 9.75	9.25 @ 10.00
Book papers, No. 2, carload	4.50 @ —	6.00 @ 6.50	7.50 @ 8.00	8.50 @ 9.00	8.75 @ 9.50
Grey browns	2.50 @ 2.75	2.75 @ 3.50	3.25 @ 4.50	3.75 @ 4.25	4.25 @ 5.00
Fibre	3.35 @ 4.00	4.25 @ 5.50	5.00 @ 6.00	6.50 @ 7.50	7.25 @ 8.50
Manila B.	2.85 @ 3.50	3.25 @ 4.50	4.00 @ 4.50	4.50 @ 5.10	5.00 @ 6.50
Unglazed kraft	4.50 @ 5.25	6.00 @ 7.50	7.50 @ 9.00	8.50 @ 9.50	9.00 @ 12.00
Glazed kraft	4.75 @ 5.50	6.50 @ 8.00	8.00 @ 9.50	9.00 @ 10.00	9.00 @ 12.00
Pulp—					
Ground wood pulp (mill)	16.00 @ 17.00	17.00 @ 19.00	22.00 @ 26.00	26.00 @ 27.00	42.00 @ 45.00
Sulphite, bleached, delivered in Canada	65.00 up,	110.00 up	140.00 @150.00	155.00 @165.00	160.00 @170.00
Paper Stock—					
No. 1 hard shavings	2.30 @ —	2.50 @ —	3.50 @ —	4.00 @ —	5.50 @ —
No. 1 book stock	1.00 @ —	1.70 @ —	1.50 @ —	1.57½ @ —	1.95 @ —
No. 1 white shirt cuttings	5.25 @ —	.52½ @ .55	.52½ @ —	.65 @ —	.80 @ —
New light flannelettes	3.75 @ —	7.00 @ —	7.25 @ —	7.25 @ —	7.00 @ —
Black overall cuttings	1.60 @ —	4.50 @ —	5.00 @ —	5.50 @ —	5.25 @ —
No. 1 clean mixed paper	.37 @ —	2.50 @ —	2.75 @ —	2.75 @ —	2.75 @ —

JOBBER'S BULLETIN NO. 22

I sell all grades of paper for jobbers to jobbers. If you have any slow-moving stock to clean out, send me a list of what you have with prices and samples. If you are looking for any paper to fill out your stocks, give me a memorandum of your requirements, and I am likely to help you out at below-the-market prices. My business is done on a brokerage basis. I invoice nothing myself. Write for my Advance Bulletin.

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Don't Delay Ordering Your Lunch Rolls

The season will soon be here and conditions are such, that it will pay you to look ahead—
We manufacture the following sizes and counts:

SIZE SHEET	COUNT	SIZE SHEET	COUNT
10x12	30	12x18	20
12x12	15	12x15	24
12x15	18	12x18	24
12x15	15	12x18	30
12x12	20	12x18	36
15x15	20	12x18	45

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Toilet Paper, Tissue Paper, Paper Towels, Paper Napkins and Waxed Paper Specialties

Also Pamisco WAXED BUTTER WRAPS Size 6x11, 320 Count

Pamisco Soda and Drinking Cups

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Paper Mills Specialty Co.

The Mapleware Lunch Set was the sensation of 1916. It will be in still greater demand next season. Get some stock.

The Oval Wood Dish Company
Manufacturers
NEW YORK DELTA
SAN FRANCISCO
NEW ORLEANS TOLEDO

WOOD DISHES

IMPROVEMENTS IN QUALITY OF GROUND WOOD PULP

Mills Advised to Grind Their Own Pulp from Species of Wood Best Adapted for Their Special Purposes and to Provide for Suitable Apparatus for Steaming or Boiling the Logs in Order to Improve Their Pulp Yielding Qualities—Some Surprises Furnished in Paper Made in Part from Improved Ground Wood Pulp—Advantages for Those Who Wish to Improve This Material.

A correspondent mentions certain advantages accruing to large mills making a variety of paper for hundreds of purposes and admitting the use of the cheapest as well as the most expensive sorts of raw material for practical and economical admixtures of various classes of pulp. He states that while the paper maker is enabled to select different qualities or rags and various grades of chemical wood pulp for different qualities of paper, he is, however, limited in the choice of ground wood pulp, which is almost generally made of one predominating quality.

Should Use Best Adapted Wood

Important improvements in the quality of ground wood pulp appear to have been disregarded in this country. The progressive papermaker could utilize an increased amount of that material to advantage, especially in improved quality with regard to strength and purity. Thus our informant would advise those mill making varieties of paper for different purposes to grind their own pulp from those species of wood which are found to be best adapted for special purposes, and at the same time to provide for suitable apparatus for either steaming or boiling the logs of wood in order to improve their pulp yielding quality. Aside from saving in freight of the wet ground pulp from another mill and the expense of time and labor in redissolving the same the greater advantage is gained in the facility to produce pulp of various qualities differently adapted for making special grades of paper.

Pulp may be ground in different ways. We mention the hot and the cold grinding process on different stones of a coarse or of a fine grain—the grinding of steamed and of boiled wood on different stones—into long or short fibres or partly into fibrettes; also the regulatable pressure of the wood on the stones, all of these methods being available for securing different results.

Should Make Judicious Selection

The papermaker is well aware that various species of wood are yielding different pulps for making either a snappy or a flexible, a harder or a softer sheet of a more or less smooth and bright surface—consequently when purposing to make one or the other of the mentioned qualities he should be enabled to make a judicious selection from his own stock of different logs—such as spruce, hemlock, pine, poplar, boxwood, etc. It is said that the quality of paper depends upon the beater, admitting that the best constructed beater and still more so the practical operation of the latter by an intelligent, able beaterman, are the factors upon which depends the obtaining of good results, yet one must admit that the beaterman depends entirely upon that by him unalterable innate nature of the raw material which he is shaping into the best condition for making a good serviceable sheet. Before the advent of the wood fibre, the rag fibre industry, simple as it may appear in our advanced age, was esteemed to be one of the arts in the trades. Before the invention of the bleaching process, white paper was made from white cotton and linen rags; blue wrappers were made from blue calico and linen rags; the coloring process was progressing very slowly—the general public was not accustomed as we are to use more than a few grades of paper, the home-made supply being mainly limited to wrapping, printing and writing paper; the unworthy straw wrapper, although entitled to the merit of having partly relieved the scarcity of rags, has been superseded by the more suitable and cleaner white wood pulp wrapper. Writing paper in those days served also for lithograph, wood cut and copper printing; coated and glazed papers for art prints, etc., were scarcely known 70 years ago.

Many Varieties of Paper Required

The never-yielding, onward march of progress, however, has gradually created a demand for a multitude of different paper qualities, and we could now mention many hundred varieties of paper each manufactured or finished in a distinct method. The modern papermaker is consequently constrained to enter the current of evolution by enlarging his knowledge of raw material, and to study their application and preparation for endless purposes. The introduction of the wire cylinder and Fourdrinier machine, together with hundreds of labor-saving machines, the transformation of wood by mechanical and chemical means into the indispensable wood fibre, besides the very important study of the cellulose which represents the base of the paper industry, constantly bearing surprising developments—all these factors have elevated the paper industry into a position entitled to rank among the technical and chemical sciences.

Some Surprises of Improved Pulp

Following the mention of feasible improvements of ground wood pulp, the writer, while examining a fine sheet of imported book paper of very clean, white, smooth and even appearance, was rather surprised to find that the sheet contained at least 50 per cent. of ground wood pulp besides chemical wood pulp; the ground pulp could not possibly have been derived from the ordinary unimproved quality. It had most likely been improved by a new not-made known process. In this line the PAPER TRADE JOURNAL published during the latter part of last year a description of a new ground wood pulp process, which has resulted in the production of a superior quality of news paper of greater strength and purity, as confirmed by one of the highest authorities. It has proved to be of sufficient strength to obviate the necessity as in general practice of adding from 20 to 25 per cent. of sulphite pulp, and owing to a new boiling process whereby air is prevented from entering into the boiling wood the quality of rosin present in coniferous wood has been preserved so well that it apparently has served for sizing the paper so well that the usual addition of rosin soap was not required. The process, as described before, consists mainly in boiling with direct steam logs of wood in a plain but closed boiler well filled with water for the exclusion of air. The boiling is performed at 110 deg. Alsius for six hours, under 10-12 atm. pressure. Every part of the boiling wood becomes thoroughly impregnated with water, and the power required for grinding is materially reduced. The increase in weight of the wood proves to exceed the gain of weight in the usual steaming process at least threefold.

Boiling of Wood in the Bark

An additional advantage is in store for those wishing to improve the quality of ground pulp—in the boiling of wood in the bark, especially sticks of small calibre—for the purpose of facilitating the elimination of the bark—which by rossing is attended with too much waste, that it is usually thrown out as of little or no value, the expense of boiling is by far outweighed by the lower cost of material and the saving in grinding power, labor and material, at the same time the product of the sappy stems of small dimensions yield a pulp quite superior in strength in comparison with pulp derived from larger and rather dry trunks of wood. It

Bleached and Unbleached

WOOD PULP

of every description

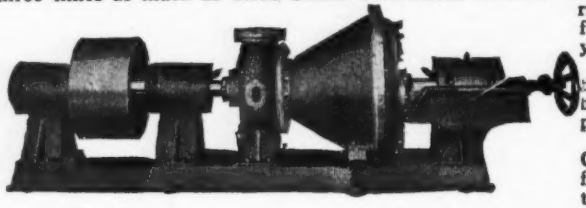
M. GOTTESMAN & SON

Established 1886

18 East 41st Street NEW YORK, N. Y.

Increase Your Production

Three Claflin Continuous Beaters will handle as much stock as six tub-beaters. The six tub-beaters will cost three times as much as three Claflin Continuous Beaters. Six tub-beaters will occupy four times the floor space required for three Claflin Continuous Beaters. These facts have been demonstrated daily for the past nine years in some of the best mills in the country.

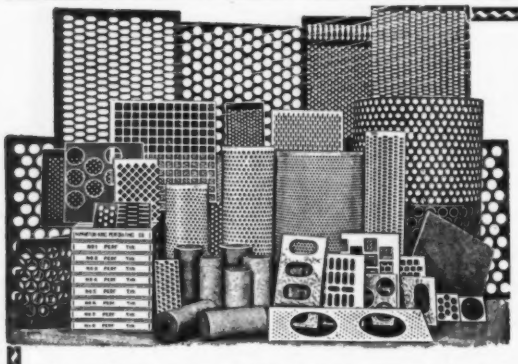


It has also been demonstrated beyond question that the Claflin Continuous Beaters do better beating and brushing, produce a finer, stronger and more uniform pulp than the tub-beaters.

We also have many customers, who prefer our Continuous Beaters to Jordan engines, because the fillings never break or tear out, and they obtain a better product than from a Jordan.

If you manufacture Kraft paper, and are having trouble with tub-beaters, Jordans and other refining engines, write us for special information on Kraft stock.

THE CLAFLIN ENGINEERING CO., LANCASTER, OHIO



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Paper and Pulp Mill Screens

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Centrifugal and Rotary Screens—Drainer Bottoms—Filter Plates—Pulp Washers, etc. All sizes and shapes of holes in many thicknesses and dimensions of sheets. Accuracy in all details and excellence of quality at lowest consistent prices.

THE HARRINGTON & KING PERFORATING CO.

618 NORTH UNION ST., CHICAGO, ILL. 114 LIBERTY ST., NEW YORK, N. Y.

has been stated frequently that the Swedes make their best Kraft paper from small stems and saplings and branches of trees by chopping wood and bark together into suitably small dimensions and thus digest the matter in the sulphate process, for gaining an excellent fibrous material which proves to be superior in strength to sulphite and is nearly equal in strength to manila rope, which latter is regarded as the strongest fibre within our reach!

The steaming of logs for grinding purposes has been practiced on the other side during the last twenty to twenty-five years for the twofold purpose of facilitating the barking operation and for saving the unavoidable waste of wood by rossing in the usual manner with expensive machinery.

Advancing prices of wood will probably cause the introduction of this process in parts of our country; the operation is performed by hand work, the bark is readily taken off, and the exposed wood can be cleaned or washed with ease if required, before drying. The brown color of the bark leaves only a slight coloration on the ends of the logs and is said to be insignificant. Carl Hofmann writes in his handbook in 1894: "A saving of labor is gained in the production of cheap pulp by placing the logs in their raw state into the boiler, while during prolonged boiling the bark pulls off by itself.

In 1898 a patent having been granted on a barking drum, the patentee wrote to Hofmann the following: "I have mainly elaborated wood which has been steamed in the bark." With regard to contesting the issue of a recent patent in Austria on this process practiced so long ago, various paper makers stated in German trade papers that they had used the patented process at least twenty years!

HILL CLUTCH COMPANY BUSY

Among machinery manufacturers serving the paper mill industry The Hill Clutch Company, Cleveland, Ohio, has been the recipient of many large orders during the past twelve months.

Power transmission equipments, including collar oiling bearings, rope drives, agitators, etc., have been furnished, or are on order, for the following companies: The Chas. Boldt Company, Monroe Binder Board Company, Riordon Pulp and Paper Company, Mattagami Pulp and Paper Company, Ltd., Great Southern Lumber Company, Ball Bros. Glass Manufacturing Company, Chicago Mill and Lumber Company, Mead Pulp and Paper Company, The J. N. Hahn Company, Riverview Coated Paper Company, Hawthorne Paper Company, Wardlow-Thomas Paper Company, Detroit Sulphite Pulp and Paper Company, Rex Paper Company, Frank Gilbert Paper Company, J. P. Lewis Company, Inc., Ontario Paper Company, Ltd.

The above names of customers are those installing beater lines, agitator equipment and machine lines, but of course, many other pulp and paper mill customers' orders have been filled. Also Hill collar oiling bearings and other transmission equipment has been furnished to paper machinery manufacturers for use in connection with their machinery. One of the larger pieces of apparatus is a belt tighener for a belt 80 in. wide for the Wardlow-Thomas Company.

NOW INTERSTATE CLAY COMPANY

On account of there being three or four clay companies known as Southern Clay Company, The Interstate Clay Company, Sumter, S. C., has amended its charter and changed name of this company to the Interstate Clay Company.

"History of Paper Manufacturing in the United States," by Lyman Horace Weeks, which has been running serially in the PAPER TRADE JOURNAL is now ready for delivery in book form. The price is $3. Order of the LOCKWOOD TRADE JOURNAL COMPANY, 10 East Thirty-ninth street, New York.

MAKING ROSIN SIZE

MONTREAL, Que., January 30, 1917.

Editor, PAPER TRADE JOURNAL:

The writer is interested in your issue of January 18 and the question No. 2383 in your Department of Practical Questions and Answers. The information desired in this question was certain definite data for making rosin size and specific questions were propounded.

Feeling that the answers to these questions are somewhat misleading, I take the liberty of discussing them with you.

In the first place is recommended to your inquirer that the rosin should be melted before adding any soda. Presumably there is some chemical reason for doing this which is not stated. The fact is, however, that this is much more difficult than dissolving the rosin direct in hot soda ash solutions, and it has yet to be demonstrated that any chemical advantage arises from the melting of rosin before saponification.

Your correspondent recommends to the inquirer that he use 14 lbs. of dissolved soda ash to 100 lbs. of rosin, but does not state that the only circumstances under which such a formula should be used is when the manufacturer has not a satisfactory method for diluting his size before using it.

The correspondent has also recommended to cook the rosin size about 12 hours, whereas, if a proper cooking apparatus is used this cooking time should not exceed four or five hours.

The explanation offered regarding the effect upon the size by heated paper stock is hardly a satisfactory one, because when the stock is on the wire it is not likely to be hot, even if it has been hot in the beater, unless steam has been applied directly to it on the machine. The real explanation for the effect of hot stock upon size is that any precipitates formed will have less bulk and covering power at higher temperatures than if they were produced in the cold, because the colloidal properties of the size precipitates will be considerably reduced.

Although I am loathe to take exception to any statements made in your answer column, I feel constrained to present what I consider to be a more exact statement of the facts as they are.

Yours truly,

J. A. DE CEW.

SAN FRANCISCO TRADE NEWS

R. S. Talbot, who recently resigned the position of manager of the Inland Paper Company, of Spokane, spent the past week in the city conferring with persons who are prominent in the paper trade. Talbot's name is connected with the rumors in circulation on the coast to the effect that a pulp and paper plant is to be established in the State of Washington, near Aberdeen.

W. G. Lambert, the head of the old Lambert Paper Company, of Salt Lake City, who has been retained by the Zellerbach Paper Company as manager since they acquired all of the capital stock of his concern, has been spending a few days in San Francisco. The style under which the new Zellerbach branch house will be operated is "The Lambert Paper Company."

San Francisco conditions are petty good for this season of the year as far as demand for paper is concerned. The principal printing firms had a very fair run of business preceding the holidays, although some of the large business houses did not issue their annual catalogues.

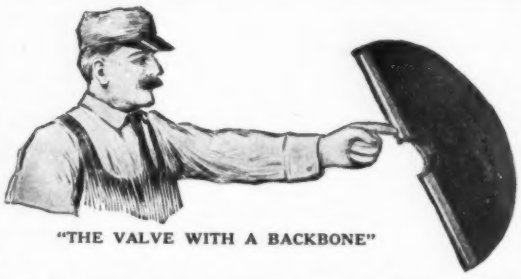
The local paper warehouses have had great difficulty in keeping up their stocks, owing to Eastern mill conditions and car shortages. They are well supplied with high grade bond papers, but some of the cheaper goods are very scarce. Chip board stocks on the coast have been exhausted and shipments from the East, which are new depended upon, are very uncertain.

HOWARD BOND

WATERMARKED

COLOR BRILLIANT STRENGTH WONDERFUL

THE HOWARD PAPER CO., URBANA OHIO



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There's the Reason!

THAT STEEL CORE MAKES

RUB-STEEL VALVES

LAST LONGER—DO BETTER WORK

Ask about our Soft Valve for Suctions

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ORR FELTS AND JACKETS

ALL ARE GIVING SATISFACTION ON

NEWS AND FAST RUNNING MACHINES

THESE FELTS ARE WOVEN ENDLESS

THE ORR FELT & BLANKET CO., Piqua, Ohio, U. S. A.

DELLO QUALITY SERVICE BOND

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ODELL MANUFACTURING COMPANY

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PAPER AND PULP MILLS, GROVETON, N. H.

Missisquoi Pulp & Paper Co.

SHELDON SPRINGS, VT.

Manufacturers of

WHITE and COLORED BRISTOL

MANILA TAG BOARD

and

Specialties in Card Board

The Riordan Pulp & Paper Co., Ltd.

Montreal, Que.

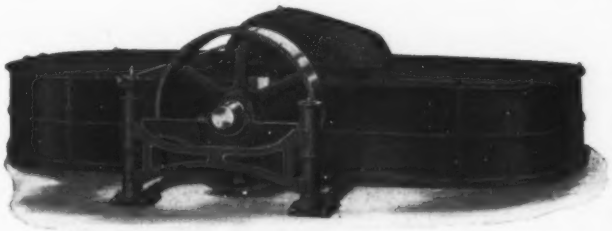
Manufacturers of the celebrated

Easy Bleaching Hawkesbury Sulphite.

This year we are also making a strong high grade of Bleached Sulphite.

We return sincere thanks for the business given us during the past year, and will do our utmost to merit the continued confidence of our customers.

T. J. STEVENSON
GEO. E. CHALLES
Sales Managers



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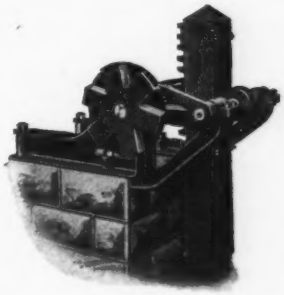
BEATING, WASHING AND COOKING

ENGINES

FLY BARS AND BED PLATES

ALL TYPES

PLAIN AND LOCK VALVES
HYDRANTS



Head Gate Hoists

Waste and Penstock Gates

Tainter Gate Hoists

CATALOGUE ON REQUEST

DAYTON BEATER & HOIST CO., DAYTON, OHIO

Editorial

Vol. LXIV. New York, Thursday, February 10, 1917 No. 6
FORTY-FIFTH YEAR

This Issue

This is the largest annual review number of the PAPER TRADE JOURNAL ever printed. It contains 380 pages, which is 40 pages more than were printed in the annual review and convention number last year. The amount of advertising carried also shows a generous increase over that carried in the annual number last year.

The character of the matter presented in this issue will, we are certain, be greatly appreciated by the trade. No year in the history of the trade has ever been more important, and a careful résumé of all the important events that have transpired not only in this country, but in the important foreign countries as well, have been printed, where, in spite of the circumstances produced by the war, it has been possible to obtain this information in time to be used.

There has been an unusually large amount of construction work during the year, and numerous attractive pictures of such work in various stages of completion, together with descriptions, are printed. The convention matter itself will be found more interesting than usual. The Technical Section especially has carried out a program of a high class order, and most of these papers, in whole or in part, are included in this issue. Worthy of more than passing mention also are the reports of the several cost committees, all of which are printed in full and deserve to be carefully read by everyone connected with the industry.

The Break with Germany

No industry is more interested in the possible effect of the break with Germany on raw materials than the paper industry. The present situation has been the subject of much discussion among the paper men in New York this week.

The opinions expressed are remarkably uniform. For one thing, it is universally accepted that war conditions cannot result in weakening domestic markets. The probable effect will be a general rise in price of raw materials, which may not be felt until late in the spring. A rise in pulp is expected by all the importers. Even if Germany should allow free passage north of the danger zone to shipments of Scandinavian pulp, there will still be two factors to consider. One is the high insurance rates, and the other the high freight rates, for these will undoubtedly undergo a further increase with the reduction of Atlantic tonnage by submarine activities. As the demand for pulp will probably be even greater this year than last, there seems to be no other outcome possible than a stiffening of the market.

The effect on paper stock will, in the opinion of dealers, be similar in less degree, although shipments of rags and old papers from Europe have been very small since the beginning of the war. The possibility of increased shipments has been a bearish argument in the domestic market which will now be removed. Dealers in bagging and ropes look for a similar situation in those lines.

Paper Mill Accidents in Canada

At the first annual meeting of the Safety Association of the pulp and paper mills of Ontario, the safety engineer, A. G. Pounsford, reported that during the year there were 617 accidents, comprising a loss of 7,556 days. Of these 10 were fatal and 17 resulted in total disability. With few exceptions the mills were co-operative to lessen the danger from accidents. Eighteen safety committees had been appointed; one mill had chosen a safety engineer for itself, and two others were likely to do so.

One of the most favorable results was the acceptance of a campaign for teaching first aid to the employees. As a result the cases of infection had decreased from 10 per cent. in 1915 to 1.6 per cent. in 1916.

At the expense of six mills a moving picture show was undertaken for the teaching of workmen to avoid dangers.

Various bulletins have been issued along the same line. The engineer is now working on standards of guards for inrunning rolls. Mr. Pounsford is resigning, as he will be occupied with his new duties with the Port Arthur Pulp and Paper Company.

Another Prophet Without Honor

The morning following the annual meeting at the Hotel La Salle in Chicago of the Western Paper Dealers' Association, the Chicago *Tribune* printed the following:

Paper Dealers Predict Slow Decline In Prices.

That the crest of the high price of print paper had been reached, is the opinion voiced last night by members of the Western Paper Dealers' Association.

Speakers predicted that prices would decline gradually with a "seeming approach of the end of the war."

Officers elected for 1917 were: President, Arthur Van Vlack, Chicago; Secretary, W. N. Gillette, Chicago; Treasurer, John Swigart, Chicago.

About the only authenthic thing in the above article is the list of new officers elected. No one present seems able to recall which of the "speakers predicted," etc.

In fact, no paper dealer in this Association ever had any medal pinned to his manly chest for such laudable work. The question of prices in the paper field is one that no prophet but an unsophisticated "cub" reporter would dare to make any prophecies about.

May Buy, Not Build, Paper Mill

There is a rumor around the Capitol these days that it is possible that instead of trying to build a paper mill that the government might try to purchase one outright. Members of the Joint Congressional Committee on Printing when questioned on this matter refused to discuss it in any way. One of the officials in connection with this paper work said that the government has to have paper and it is GOING to have it. There have been even intimations that the courts would be asked to condemn a mill and set a price on it. This latter, however, seems a little far fetched.

WESTERN MILLS ON THREE TOUR SYSTEM

The Standard Paper Company and the Western Board and Paper Company, both of Kalamazoo, manufacturers of box board, card middles and express wrappers, have adopted the three-tour system for their tour workers. The same is true of the Eddy Paper Company, with mills at Three Rivers and White Pigeon.

The plan went into effect Monday morning of this week and came in the form of a voluntary concession on the part of the mill managers. One year ago the book mills, coating mills and writing mills in the valley changed from the two to the

JAKE SIEBERT.

three tour system. It has apparently worked out satisfactorily, for the board mills not involved in the initial campaign have fallen in line.

The move just made will mean a great reduction in the working hours per week of the tour workers. Under the old scale they averaged 68½ hours per week. Working three tours means 48 hours per week. There will be no reduction whatever in pay.

The Standard Paper Company operates three machines, the Western Board and Paper Company one machine. The managers of the two mills announce they will require about seventy additional hands to fill the ranks of their tour workers. Based on the average wages now paid this will entail an added expense of between $55,000 and $60,000 annually.

The Eddy Paper Company has four machines in its two plants and will require about sixty to seventy additional hands to put both mills on the three-tour basis.

The concession just made by the three board manufacturers means that every mill in Kalamazoo City is now operated on the three-tour plan. This is also true of the book mills at Otsego, Plainwell and Watervliet, the writing mills at Vicksburg and the board mills at Three Rivers and White Pigeon. Nearly 1,000 papermakers have been brought to this section within twelve months' time. They have come from all parts of the Union. The representative of the PAPER TRADE JOURNAL has been privileged to talk with many of them. Without exception they say that the working conditions in the Kalamazoo Valley are ideal from the papermakers' standpoint. The mills are modern and clean. Unusual attention has been paid to the sanitation and health of the workers. The mills are conveniently located and the housing conditions for employees are excellent. Workers admit that in every institution there is a ready willingness to co-operate in cases of urgent need, and the paper mill presidents are always approachable and glad to meet the men half way.

As result of this good feeling in the valley every mill has a waiting list of men anxious to come here and fill any vacancies that may occur.

WORLD BUYS THE HIGH FALLS PULP & PAPER CO.

To supplement the supply of news print furnished by the De Grasse paper mill at Pyrites, N. Y., which was insufficient for its needs, the New York *World* has, by purchase of the stock, gained control of the High Falls Pulp and Paper Company, owner of a ground wood mill and paper mill at Chateaugay, N. Y. The output of this plant, which is between 25 and 30 tons per day, together with the De Grasse mill, practically supplies all the paper which the *World* uses. It is expected, however, that some changes will be made increasing the capacity of the mill.

The High Falls mill is equipped with a 108-inch Fourdrinier and two 1,500-lb. Dillon beaters, and formerly turned out tablet and hanging paper as well as news. The ground wood mill includes four grinders and three 72-inch wet machines.

James A. Outterson, president of the De Grasse Paper Company, has been chosen as the new president of the concern, and the other officers have been elected as follows: J. G. Jackson, vice-president; Lynn E. Wolf, secretary; N. H. Botsford, treasurer; W. T. Libby, manager. The Board of Directors is composed of the same men. B. W. Wood, assistant manager, has been continued in the same position.

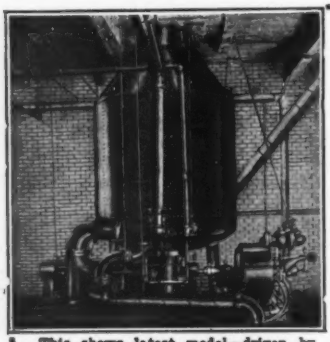
The former officers of the company were John F. O'Brien, president; J. S. Van Vechten, vice-president; B. W. Wood, secretary; L. S. Van Vechten, treasurer.

PHILIP G. BALTZ LOCATES IN NEW YORK

Philip G. Baltz, one of the best known and most popular paper mill men in the Kalamazoo Valley, left Kalamazoo Monday to accept a responsible position in the New York city office, 200 Fifth avenue, of the Ticonderoga Pulp and Paper Company. Mr. Baltz will be in charge of sales, a position for which he is well adapted by long training and peculiar ability. He has worked along this line ever since starting as a mill employee and official. Mr. Baltz went to Kalamazoo and became sales manager of the King Paper Company. He was instrumental in successfully marketing the output of this big concern, at the same time making a host of friends.

EDWIN BUTTERWORTH & CO.
MANCHESTER, ENGLAND
Packers of all kinds of
PAPER STOCK, COTTON WASTE AND GUNNY BAGGING, BUFFALO SIZING, Etc.
83 Sole Agents HAFSLUND
BLEACHED SULPHITE PULP — BEAR BRAND
Office in New York:
JAMES PIRNIE, Manager, VANDERBILT BUILDING, 132 NASSAU ST.
Branch Offices at Boston: 160 Congress St.—CHARLES H. WOOD, Mgr.

"WATERBURY"
W Felts-Jackets W
ORISKANY, N. Y.
OUR TIGHT FITTING, DIAMOND "W" JACKETS
WILL NOT LICK UP AT ANY SPEED
1869 {MADE ONLY AND GUARANTEED BY} 1915
H. WATERBURY AND SONS COMPANY, ORISKANY, N. Y.



This shows latest model—driven by a steam turbine—the exhaust being used to heat water for next charge.

WINESTOCK

DE-FIBERING AND DE-INKING PROCESS

Patented

Produces Strongest, Brightest and Best Pulp Obtainable from Waste Papers. Not a Mere Say-So, but a Fact.

It de-fibres and liberates ink and color in one operation. It separates ink and color from fibres, instead of rubbing, grinding or kneading them in—thus shortening the time required for washing, and insuring a brighter pulp. The rapidly moving propeller blades actually "scrub" the fibres during the churning process.

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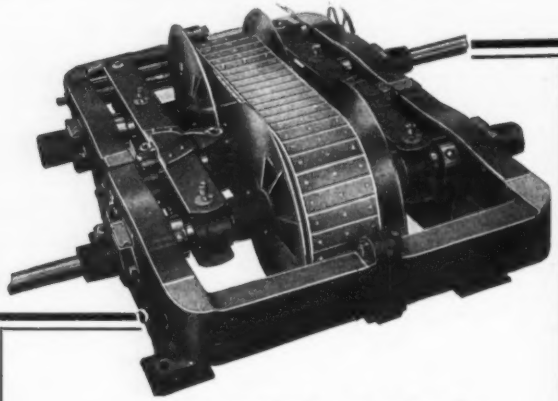

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1,000 speeds at your operator's command; he can get and maintain an exact speed at any time. Speeds are changed while the machine is running, thus saving time and labor, besides greatly improving the quality of your product.

Put your speed problems up to us and we will solve your troubles.

Write for catalog T-16 to-day.

REEVES PULLEY COMPANY

Columbus, Indiana

Chicago Branch: Cor. Clinton & Monroe Streets

Exclusively—
Cutting Machines

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OSWEGO MACHINE WORKS
OSWEGO, N. Y. *Write*

PULP MILL MACHINERY

3 and 4 POCKET GRINDERS **SCREENS**
WET MACHINES **DECKERS**
CENTRIFUGAL PUMPS **BARKERS**
CHIPPERS

Mr. H. E. Tidmarsh, founder of the Friction Pulley & Machine Works, is now connected with us, and we can furnish repair parts for all machines made by them before they discontinued business.

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BANGOR, MAINE

AURANTINE

POWDER—"OSAGE ORANGE"—PASTE

COLOR SIMILAR TO AURAMINE

LOWEST QUOTATIONS ON ALL CHEMICALS AND COLORS FOR PAPER

MARDEN, ORTH & HASTINGS COMPANY, Inc.

61 BROADWAY, NEW YORK CITY

RELATIVE EFFICIENCY OF BOX BOARD

Written by E. W. Howell

In these days of abnormally high cost of all paper products, it is unfortunate that buyers of paper box board are not advised more fully as to the relative merits of the board offered to them by various manufacturers. It could hardly be expected that the occasional buyer can exercise that intelligent discrimination necessary to the most economical placing of his order. Some progress has been made by a few mills toward greater efficiency of their product, and consumers must shortly learn to discriminate between a ton of board that renders 2,000 sheets in a given thickness, surface-finish and size, and a ton that renders 2,200 sheets in the same specifications.

From Another Angle

To approach the problem from another angle, one might express the difference in sheetage as a difference in density of fibre, whether loosely knit or tightly woven—difference in percentage of water retained—difference in specific gravity. The best men in the business have consistently and persistently tried to improve board in each of these particulars, only to find the sales-force of their plant incompetent to convincingly demonstrate the success achieved, and the advantage gained by their efforts.

The advantage is a real one, because the service of a ton of board has been increased by at least 10 per cent., and who will deny that the whole public has not profited, when by improved processing, the same amount of raw material, the same labor expenses, and the same machinery develops 11 units where there were only 10 previously.

What the Careful Buyer Does

"Caliper thickness" is considered an effective standard for measuring the bulk of boards—to this careful buyers add the "count" required—but the lists compiled for reference in such matters have been figured from average results under conditions prevalent 10 years ago. These lists cannot be revised to fit the progressive mill with newer devices, because there are 10 mills that require the old lists for every one that could follow the more exacting schedule of newer standards.

Mr. Box-Board-Buyer, do you know that certain mills are forced to make your board smoother, or harder, or damper, than you really want it just because your order calls for a combination of caliper and count that is below the best standards of that certain mill?

Are you one of those unfortunates who figure a folding box board with good printing surface in caliper .040 should turn out (Regular 45) eighteen hundred sheets 26x38 to the ton, when your competitor, dealing with a more advanced mill, is estimating the same caliper .040, in the same degree of smoothness, to turn out (Regular 55) 2,200 sheets? Of course you lose the order.

Not an Intentional Wrong

This is not meant to convey the impression that this difference is an intentional wrong, perpetrated upon the paper board consuming public. Buying that Regular 45 stock at $72 a ton, one pays $40 a thousand sheets. The buyer believes the "old-line" mill has done him a favor, because the "newer" mill quoted $82.50 a ton. The "old-line" mill is lower in price by $10.50 a ton—but one neglects to figure that twenty-two hundred sheets out of the $82.50 board is $37.50 per thousand sheets, as compared with $40 per thousand from the $72 per ton stock, so the higher price per ton is actually more efficient and less expensive.

Let it be emphasized that "ton-price" should not be the only determining factor as to which mill's product is most economical for your use. Consider the *sheetage*, and combine both ton price and sheetage before making your conclusion.

Sheetage at the old low standards does not always mean moisture laden or clay laden board. Boards of very fine texture, with closely knit fibres and highly calendered surface, made specially for lithographic work, are of necessity lower in sheetage than a board less pronounced in these qualities. But a little study and mill-correspondence may easily demonstrate that for your ordinary printing work you can find a stock of suitable smoothness and rigidity which gives the greater sheetage.

Are You One of These Buyers,

Perhaps you are one of those buyers who write several board mills: "Please give me your best price on a carload of Single Manila Lined Chip, caliper .040. Low price is necessary for me to secure the order."

No finish specified—no sample—no hint as to whether it is for use plain, printed or lithographed. You get in reply a series of prices "*per ton,*" with no information as to what results you are to expect from the proposed supply of material. Try some time to get what would be a more satisfactory reply by writing not only to the struggling low-priced mill, but also to some of the successful high-priced mills. Send an inquiry about as follows:

"Please quote on carload Single Manila Lined Chip, caliper .040, suitable for folding boxes, to be shipped as flat blanks, printed in one color, large type. Specify your highest sheetage basis for size 25x40, and submit samples showing what you consider suitable surface finish (in your basis) for such purpose as specified. If agreeable, give both ton and thousand sheet price."

What Such a Letter Indicates

Such a letter indicates to the thoughtful mill manager (a) the bulk required .040; (b) the bending quality—differential between board that will stand a complete fold, and one cut, scored and shipped flat, intended only for half-oiled when locked up; (c) the degree of smoothness, whether for plain printing, multicolor or lithographic work; (d) your understanding of the business, engendering a confidence in your ability to appreciate the newer basis of computation; (e) your willingness to receive his suggestions, samples and advice.

Perhaps your replies to such an inquiry will soon convince you, first, where you can practice real economy; second, which mills are managed by master-board makers; third, why certain mills are high-priced and full of orders, while others are low-priced and short of business; fourth, why the high-priced mill is the most economical for you in the long run.

Much Uncertainty Eliminated

Boxes are usually sold by count, from board bought by weight, and just here lies many an unseen discrepancy, where a contemplated profit mysteriously disappears. Try selling boxes by count made from board bought by count. This will not mean profit insurance, but it will eliminate much of your margin of uncertainty.

Like all innovations there are exceptions, such as the case where hardness, heaviness, compactness or dampness may be required, regardless of how low the sheetage per ton may be on account of these requirements. Such cases being exceptions, however, our box board mills could produce stock lighter in weight without being less in thickness, which would add 10 per cent. to the number of boxes manufactured from their total tonnage. Let us make the board mills 10 per cent. more efficient by more intelligently discriminating in the individual method of buying.

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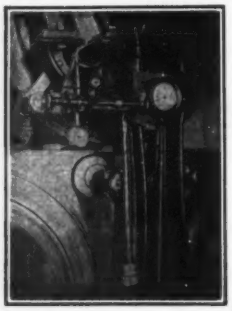

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"ENGE" AND OTHER GROUND PULP

A Lecture Was Recently Delivered by Chief Engineer Chr. Vig Before the Technological Association of Norway. Secretary G. F. Steele, Secretary of the American News Print Manufacturers' Association, Has Sent to the Members of the Association a Translation of the Report of the Lecture, Printed in the Papir-Journalen, Which Is as Follows

From the description of a patent and from the trade journals I have learned that a new method had been copyrighted in Germany, the idea of which was to treat the logs with hot water under pressure before the grinding process, to be treated afterwards in the customary manner in the grinding apparatus, and further I have read that from this pulp, newsprint had been produced without any addition of cellulose. Through a mutual business acquaintance, I got in touch with the inventor of the method, Mr. Leopold Enge, and it was soon agreed that it would be best if I paid him a visit so that I, as an eye witness, could ascertain how the manufacturing was done.

Mr. Enge has a paper mill in Petersdorf in the "Riesengebirge" (East Germany) and in connection with the paper mill he runs a little cellulose mill for his own demands. He has wood pulp mills at two falls higher up the river and at the furthermost one the wood to be ground is treated according to the new method. The wood is barked by hand, which in general is yet the practice in this district; thereafter it is packed into a horizontal boiler having a capacity of 423.77 cubic feet and which is fitted with pipes for indirect heating.

When the wood had been packed, the boiler was filled with water, previously heated. Great care was taken that any air, possibly enclosed, should be expelled through a valve. The water was heated to the desired temperature by direct steam influx, and when the water had reached the proper height (experiments were made with temperatures from 230° to 284° F.) the pressure pump was started and the pressure was brought up to a point which prevented the water from boiling. Now the temperature was maintained by the heating-coils inside the boiler. The boiler must be provided with necessary apparatus for the measuring of pressure and temperature. The treatment lasted about 3 hours, and the wood when taken out was saturated with hot water. The higher the pressure and temperature, the more quickly the wood became saturated. The coal consumption was said to be about 44.09 pounds per 220.46 pounds dry pulp. I figure that fuel value of these 44.09 pounds would correspond to 33.07 pounds of our small coal per 1 ton of (2,204.62 pounds) 50% woodpulp, and this was when cold water was used, that is, when the water was not used over again. In ordinary times, when the price of coal for instance is 3.40 per short ton in the fire room, the treatment would cost in coal about .255 per short ton moist.

Wood treated in this manner was remarkably changed, inasmuch as it could be split through the whole length. The binding substance was plainly softened, and the chips were quite pliable. If the wood was allowed to dry, it became as before and the chips stiff and brittle. This proves that the incrustations do not vanish in the treatment but are merely softened. To this points also an observation that Mr. Enge has made, that the yield is greater from wood treated in this manner than from the same quantity unboiled wood. The thoroughly boiled wood was ground on ordinary sandstones, and screened by .039 to .043 inch perforations. The pulp when treated with water of 230° to 248° F., turned somewhat more yellow than regular pulp. At higher temperatures it assumes a rather strong brown, but anyhow not as dark as brown pulp. There could be ground per horse power more of the "ENGE" than of the regular pulp. The pulp in sheet form was very tough and permitted of stretching to the length of meters, in quite thin layers, this being the only way possible with fine tough pulp. On the paper machine it was easy to work without adding any cellulose, the paper being solid, having a fine surface and a good "body." However, it was very slow, for which reason it was difficult to get the water drained off at great speed, but the paper machine fortunately was of an old type with few drying-cylinders, so it could not run faster than about 262.46 feet per minute, and at such a speed the draining of the water was satisfactorily effected. I was told that when this pulp was used, there would not be any resin spots on the wire.

In the Laboratory for testing materials, I have had tests made with regular news print paper and with paper containing only "ENGE" pulp. The result was:

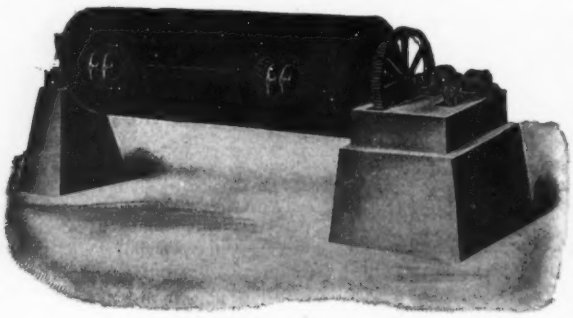
	Enge Pulp Paper.	Regular News-Print Paper.
Stretching	1.43%	1.43%
Breaking length	2,875 metres	2,879 metres
Number of foldings over	3.1	9.8

The result shows that "ENGE" is somewhat stronger than the other sample, and "ENGE" does not differ as much in the length- and cross-wise direction as the other sample. But in the number of foldings, "ENGE" is absolutely inferior, as it reached on the average only 3.1, whereas the other could stand 9.8. I do not know if, as a rule, Norwegian News-Print paper can stand as many foldings. I do not think so. This result may be inconclusive and I will have more tests made. Anyhow, I have seen comparative tests made with German news-print paper at which "NG" was the best with an average of 2.4 and 3.15 foldings, whereas newsprint paper containing cellulose, on the average stood only 1.5, 2.7 and 1.13 foldings.

Mr. Enge is continuing his experiments, and a couple of days ago I had a letter from him, dated March 9, in which he says: "However, it has been stated at a mill that the power consumption for grinding of wood, saturated with 36.2 horse power per net ton pulp in 24 hours.* The grinding method most suitable for this wood has not yet been fully ascertained. I have found that I am getting more pulp with high pressure and little water than otherwise. You yourself are grinding this way, I presume. For screening I have found it possible to use perforations up to .059 to .063 inch to 1.60 m. m. On the other hand, I will not recmmend the use of coarser stones; stick to these now used. In the boiling of the wood I am getting the best results in the following manner: The water, within the shortest time possible, is brought up to 266° F., and the steam is shut off totally. My injector brings the pressure up to 176.36 pounds per square inch and with the pressure pump, the pressure is kept on 176.36 pounds per square inch during about 3 hours. In this time the temperature will fall about 59° F., but this will do no harm. In that manner the wood remains whiter than when steam is permitted to flow all the time, even if it is indirect.

Nevertheless, when it is a question of getting long fibres, efforts should be made to grind the wood in such a manner so that the fibres are not destroyed; therefore fibres should not simply be cut off. By the ordinary method of grinding, the wood is pressed on to the stone so that the sand-grains (which each by itself may be regarded as a little knife) cut the fibres off crosswise. In this manner the fibres are not obtained at their utmost

*This would correspond to 15.98 hsort tons per H. P. annually, and is almost 50% more than the regular.



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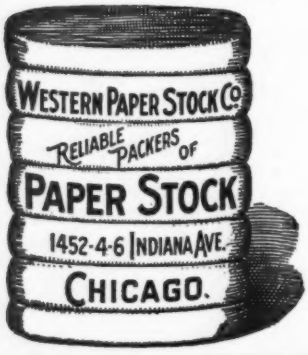

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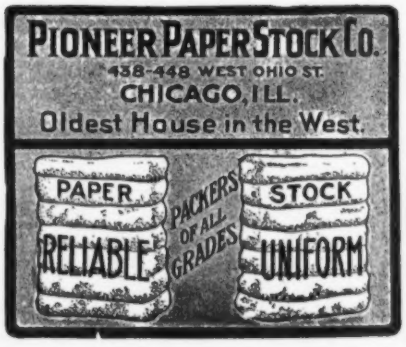

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length, because even if the fibres are treated with hot water, so that they are loose, many of them will not be torn loose, but cut over by the sand-grains. If the fibres remain full length, the wood has to be ground in the lengthwise direction of the fibres. This was known even in old times, but as the production is much less in lengthwise grinding, this method was long ago abandoned. It does not pay, when wages are high and power expensive. The thing that is obstructing production is, that the stone happens to work against the wood, and the pulp clogs between the stone and the wood.

Engineer Anderson in Hellefos, for a long time has been experimenting with modified lengthwise grinding. He places the logs at an angle of about 10 degs. against the stone, and then gets a fibre of considerable length, which is fine and pliable, almost resembling cellulose fibre. In the laboratory, I have had microphotographs taken from 4 woodpulp samples, and, for the sake of comparison, one from a cellulose sample. These micro-photographs show that first class warm ground wood fibres which have undergone rough treatment. They are not whole and long, but partly broken, some groups of fibres are thick on the one end and split on the other. The NG pulp which has some good fibres, but also some cut fibres and some dust-like pulp. The good fibres prove, that in spite of the grinding crosswise of the fibres, there will be some fibres which are not damaged because the incrustations are dissolved, the fibres are so soft and are attached so loosely that they are torn loose by the sand grains without being cut. The pulp which, without any question has the finest fibres, is that produced by angle grinding. It is long, firm and cellulose-like. Some dust-like substance is also evident. Mr. Anderson reports that the production is greater than in regular grinding; the grinding method can be adapted to old grinding machines and the necessary changes required will cost but a trifle. To those mills which use their pulp themselves, an improvement of the pulp will mean a great saving, because then they can do with less cellulose. To wood-pulp mills which sell the pulp, the advantage is, that by an arrangement requiring but a small expense, they will get a pulp better than warm ground pulp, and therefore more valuable, getting moreover an increased production. A combination of both these methods of treatment, with hot water and angle grinding, perhaps will prove ideal, and this will be tested at one of the Union Company's mills, as soon as the machinery has been installed.

The angle grinding, as mentioned before, has been in use for some time at Hellefos.

IMPROVEMENTS AND EXPANSIONS IN MIAMI VALLEY

Probably the most extensive changes made in a Miami Valley paper mill during the past year was that at the plant of the Mead Pulp and Paper Company, which acquired the Peerless mill in Dayton, Ohio, and erected a modern addition. Plans for the duplication of the plant were made immediately after the purchase, and the improvement has been practically completed. It is built of brick and cement, is three stories in height and triangular in shape.

The Black-Clawson Company, of Hamilton, has erected a 112-inch Fourdrinier machine, to be run on book. The mill was equipped with a 92-inch Fourdrinier and had been run on roofing, felting and bottle papers. Besides erecting a new mill the Mead Pulp and Paper Company has added storage, shipping and finishing departments and a modern office. The power plant is sufficient, electricity being furnished by the Dayton Power and Light Company.

During the year the same company erected new buildings at its Chillicothe plant, but the main improvement under contemplation at that place has not yet been made. However, increased facilities have been afforded and the old buildings thus vacated are now used for storage purposes.

New Addition to Plant of the Mead Pulp & Paper Co.

The new mill of the Mead Pulp and Paper Company is located at Webster and Idylwild avenue, North Dayton, in a busy industrial section. It stands out along the river in relief and the mill is an impressive spectacle to pedestrians and drivers crossing the Main street bridge over the Miami, one mile distant.

The Colin Gardner Paper Company at Middletown is constructing a modern power plant at its mill, which will involve a heavy expenditure. The improvement is one of the most important in that section of the valley.

The Reynolds & Reynolds Company, manufacturer of stationery, blank books, pads, tablets and ledgers, is adding a building at the west end of the present structure, located in Edgemont, Dayton. It will be built of brick and concrete and will cost approximately $25,000. It will be ready for occupancy by early spring.

A CORRECTION

Editor Paper Trade Journal:

I wish you would kinly correct the statement made in your issue of February 1, that the chief engineer of the Port Arthur Pulp and Paper Company is a consulting engineer for Wallace & Co., New York. The writer, who is this company's engineer, was a member of Wallace & Co., but sold his interest in that concern in November, 1914, and prior to joining the Port Arthur Pulp and Paper Company was chief engineer for the Mattagami Pulp and Paper Company, Ltd.

Yours very truly,

Port Arthur Pulp and Paper Co., Ltd.,
Thomas R. H. Murphy, Chief Engineer.

OHIO DAILIES ADVANCE PRICE

The Steubenville *Herald-Star* and the Steubenville *Gazette* of Steubenville, Ohio, have announced that beginning tomorrow the price of the newspapers would be advanced from twenty-five cents a month to ten cents a week and single copies from one to two cents, owing to the high cost of paper.

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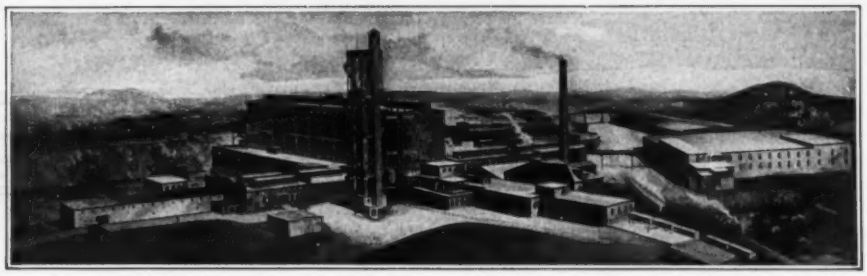

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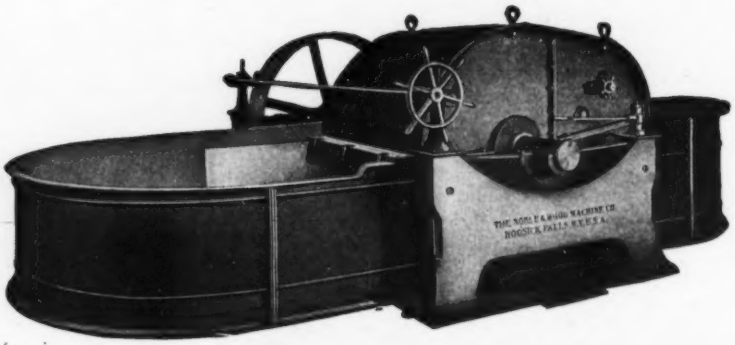


The Noble & Wood Machine Co., Hoosick Falls, N. Y.

SOME PROBLEMS IN THE REWINDING OF PAPER

Enormous Demand for Paper in Roll Has Made Rewinding a Matter of Increasing Importance—Surface Rewind Is Preferable Method, for, When Properly Designed, Accompanied by the Proper Slitting Method, a Perfect Speed Control Is Assured by Giving a Regular Speed from the Beginning to the End.

By James A. Cameron, President of the Cameron Machine Company.

We have specialized in the building of rewinders for many years past and we have done our bit toward improving the winding conditions in mills and elsewhere, by placing at the service of the mills machines which have been the result of practical experience gained by meeting all kinds of conditions and requirements.

The average rewinder is a crude affair, to say the least. It is strange that winding and rewinding mechanism has not kept pace with the splendid advances made in other processes of paper manufacture. The average mill seems to be content to deliver a square deal to its customers in the matter of quality, etc., but when it comes to winding, any old method seems to be acceptable. The customer, however, is apt to encounter quite as many difficulties from poorly-wound rolls as from poorly-made paper, especially in the paper trade.

Aside from the practical difficulties encountered by the customer, the mill's salesman has always something to explain and something to apologize for. Customers are becoming more and more critical as to the character of the rolls, as well as to the quality of paper, and modern standards in the matter of winding are becoming more and more exacting. Added to this is the positive necessity for accurately wound rolls where automatic machinery is employed, including, of course, web printing machines of all kinds.

Big Demand Has Made Problem More Acute

The enormous demand for paper in roll form has made the problem of perfect rewinding more and more acute. Mention might also be made in this connection of the large tonnage required in small or midget rolls for such purposes as automatic wrapping machines, cash registers, telegraph relays, paper boxes, envelopes, news tickers, adding machine rolls, ribbon paper, paper for wire insulation, and numerous other requirements. There has been a constant effort on the part of machine designers to meet these requirements, but the average builder of winding machines has been burdened with numerous other problems in other lines of manufacture, as no one, with the exception of ourselves, has worked exclusively in the field of slitting and rewinding machines. Machine builders who are confronted with problems in various other branches of paper manufacture could naturally not do justice to work in the line we are considering, as it is in itself a full-sized job for the brains and energies of a capable organization.

The vital fact is that the rewinding process cannot be considered apart from the slitting process. As both processes are combined in a single operation, they must work in harmony with each other, and this is the very point most frequently overlooked by machine designers. A clear analysis of the basic features of an efficient slitting and rewinding machine will, no doubt, be interesting to your readers from a technical point of view, aside from the practical suggestions we are able to offer in this connection.

Broadly speaking, the machines offered by builders other than ourselves have used one and the same slitting method—the rotary or circular shear—worked up in one form or another. "Shear cut" was wrongly assumed to be the last word on the subject of slitting, and machine builders, by accepting this doctrine without question, continued using this "shear-cut" method in their machines, as a matter of course.

Earlier Builders Combined Two Methods

Earlier builders combined this "shear-cut" method of doing the slitting with either of two methods of rewinding or coiling the strips. The method of rewinding, in which the strips are led alternately to two or more rewind shafts driven with slip belt or friction clutch, is known as the "center rewind." The other method is known as the "surface rewind." By this method all the coils are formed side by side on a single shaft by surface contact with revolving support rolls on which the coils rest and no power is applied directly to the rewind shaft.

The "center rewind" method is not practical where narrow coils are required, as they will not stand alone after they have built up to any considerable diameter. Further trouble with this method is due to variation in thickness of the paper across the width of the sheet, causing the coils to build up largest where the web is the thickest, and thereby pull the paper faster on the thickest portions, thus causing the web to feed unevenly and preventing first-class work.

"Surface rewind" is by far the preferable method of rewinding, for when properly designed and accompanied by the proper slitting method (which, by the way, is not the shear cut or rotary shear) it assures perfect speed control by giving a regular speed from the beginning of the roll to the end; also making possible an even degree of hardness or softness of coil. Further, the surface rewind method assures neat and well-appearing coils, perfectly formed.

What Causes the Defects

Let us, therefore, hold firmly to this important fact, and it will be seen that the defects in the average slitting and rewinding machine are due largely to the use of the wrong method of doing the slitting.

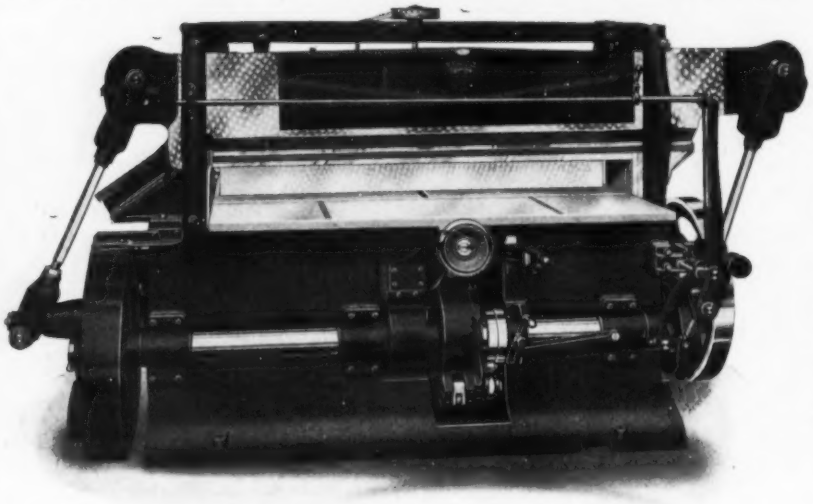
To make the matter quite clear as to why the rotary shear or shear cut should be given up as unfit to combine with the surface rewind method, it will be worth while to size up the shear cut and see just what it must be blamed for, and how these defects are avoided by substituting a proper method of doing the slitting.

To do their work properly, the rotary shears must have a keen edge, and yet their edge is bound to become slightly dulled, even after only moderate use, thereby causing a ragged or frayed edge on the strips, which then become interlaced or meshed together in the rewinding process. When this interlacing takes place it is often impossible to separate the coils from each other.

Another radical defect arising from the use of the rotary shear or shear-cut method of slitting, in combination with the surface rewind, is the fact that the edges of the material slit are slightly stretched and puckered by the blades or disks in shearing through, so that these edges are distorted and cannot lie flat in a side-by-side position as they go forward to the rewinding. Frequently, a strip overlaps its neighbor slightly, so that in the rewinding the two coils are firmly knit together and become a solid mass impossible to separate.

The trouble does not end here, as such overlapping builds up a coil of double thick material, consequently, of too large a diameter to rewind along with such coils as are not overlapped. Such overlarge coils tend to pull the material at too swift a speed at such points, and not only the rewinding is disordered, but the slitting itself is disturbed by wrinkling and stretching of the web, taut in some places and slack in others. It is, therefore, clear that the troubles arise from the shear-cut method, and the only compromise

Seybold "Dayton" Automatic Cutter



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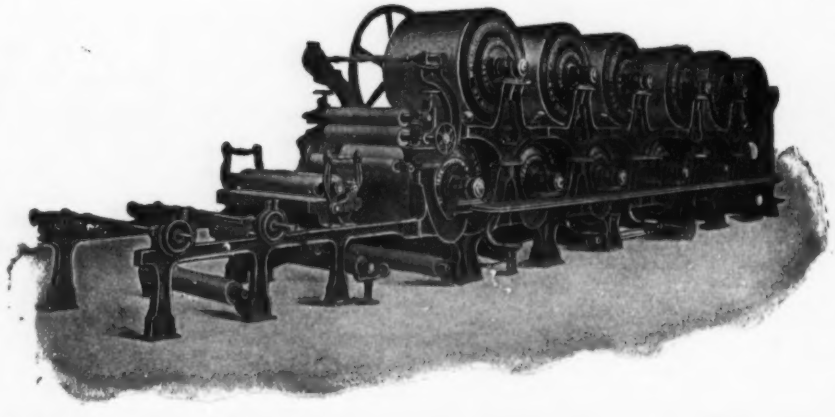
LONDON: Smyth-Horne, Ltd. WINNIPEG: Toronto Type Foundry Co., Ltd.

THE BLACK-CLAWSON CO.

HAMILTON, OHIO, U. S. A.

Builders of Paper and Pulp Mill Machinery

SHEET AND ROLL PASTING MACHINES



We issue a Catalogue which contains real information. Write for it.

FOR
ECONOMY, QUALITY,
AND
QUANTITY

our high speed Straight Fourdrinier, Harper Fourdrinier and Cylinder Machines are unsurpassed.

is to abandon all the advantages of the surface rewind method and resort to the center rewind and make the best of it.

The real question is, therefore: What method of slitting will work in combination with the best possible method of rewinding—the surface rewind? In finding the answer to this problem the Cameron principle was developed.

The slitting method developed by Cameron Machine Company, after years of practical experience in the manufacture of every sort of slitting and rewinding device, is known to the trade as the Cameron score cutter. For many years past the score cutter has been employed in a variety of Cameron special machines designed to meet a wide range of requirements. Preference for the score cutter is based on the fact that results have warranted our finally rejecting other methods in its favor, as it is the speediest and smoothest means for slitting all kinds of material, including not only paper of all kinds, but also fabrics of all kinds, fiber, asbestos, celluloid, foil, compositions, etc. And what is of vital importance, we have found that the score cutter works to perfection in connection with the surface rewind method, thereby realizing the ideal combination, which is, in a word, the Cameron principle.

The Cameron surface rewind method is a perfected example of this excellent system of rewinding or coiling strips, either wide or narrow, into rolls of any desired size. In developing this system, we have employed such improved features as our experience taught were necessary, and the result has stood the test of time on a wide range of work. The coils, as they are being wound up, rotate upon a pair of supporting rolls, spaced quite close together, of which the cutter roil is one. These support rolls are driven in the same direction and at regular speed, so that the coils resting upon them will be formed by surface contact under a degree of pressure supplied by the pressure roll which bears upon the upper surface of the coils and holds them evenly in contact with the support rolls. This pressure is adjustable to properly suit conditions. The coils are, accordingly, all wound up on the same rewind shaft side by side. This shaft may be of any desired diameter, even from three-eighths of an inch up to any required size, however large. If desired, the rewind shaft may carry cores or spools made of cardboard, wood or other materials for the centers of the coils.

To sum up briefly, it will be seen that by the Cameron score cutter the goods are slit into as many sections or strips as desired without, in any way, disturbing them, and that the strip is necessarily clean, straight and even. This assures that the strips will go forward to the rewinding in a true side-by-side relation without any overlapping or interweaving. The Cameron surface rewind insures that the coils will be evenly tensioned, firm and accurate and of neat appearance, and that the coils will not interlace or overlap.

AMONG THE PHILADELPHIA TRADE

PHILADELPHIA, February 7, 1917.—A slight lull, due partly to the war scare and partly to the plans made for the meeting in New York, was reported by Philadelphia paper dealers this week. Some of the leaders are still having difficulty with the railroad situation, especially the paper stock men. Mills are apparently well supplied for the present and few orders for stock are being placed. Prices, nevertheless, are holding firm, with the tendency in most lines still upward.

The Franklin Paper Company of 729 Cherry street, of which Henry A. Jacobs is president, is renovating and altering its offices. The changes will make for greater comfort and convenience.

A new front is being installed in the building occupied by William A. Beaver, paper dealer, of 127 North Fifth street. The old bulk window took up a great deal of space, which now will be available for office use.

Statistics compiled by James McCracken, head of the export department of Reigel & Co., Inc., of South Sixth street, show that with but three or four exceptions all the manufacturers of tissue in the United States are booked for months ahead. Mr. McCracken has had inquiries for tissue for export, and wrote to every manufacturer in the country in the effort to obtain quick deliveries. Some mills reported that they are sold up for fully a year ahead.

Lewis H. Chase, wall paper merchant of 110 West Johnson street, Chestnut Hill, is one of the heirs to the fund of $358,185, which was bequeathed 52 years ago by Sylvia Ann Howland, of New Bedford, Mass., to her niece, the late Mrs. Hetty Green. It will be remembered that the death of Mrs. Green compelled the courts to distribute the estate. In all there are 438 descendants of Gideon Howland, grandfather of Sylvia Ann Howland. Mrs. Chase gets $445.

All the Philadelphia newspapers—five daily and three evening—are now selling at two cents each. Until last week the *Public Ledger* was the only two cent paper in the city. The change, it is reported, has not seriously decreased circulation, and there has been no kick by the public.

Philadelphia dealers are not paying much attention to an advertised sale of 25,000 pounds of manila wrapping paper by a local auctioneer. The sale was first advertised to take place on Tuesday morning, January 30. Some of the supply went on that day for 5 cents a pound, according to the auctioneer. The rest is to be offered later. The paper is 36 inches wide, and about 65 pounds to the roll.

A New York office has been opened in the Woolworth building by Auer & Twitchell, of 41 South Fourth street, this city. R. L. Stevens, formerly in business for himself in New York, will be the manager. Some of the office force from Philadelphia has been sent over until organization of the new headquarters is completed.

J. F. Auer, of the firm, decided to take a vacation just about the time the new office was opened. He has left for Pasa Grove, on the gulf coast of Florida. The rest will be the first he has taken since he started in business 16 years ago.

EASTERN MFG. COMPANY'S IMPROVEMENTS

One of the several buildings started by the Eastern Mfg. Company at its big plant in South Brewer, Me., is now nearing completion. It will be used for pulp bleaching and will represent an outlay of $100,000. The process to be used in this building is that known as the Bellmer process, which bleaches in separate batches instead of the continuous system now in use.

The new building, 75 by 100 feet on the ground and 40 feet high, is located just north of the present main pulp mill group, between the mill and the fine electro chemical plant erected last spring. The building is of red brick. The foundations are of concrete as are also the floors and roof. All openings in the brick walls will be covered with steel sash or doors. No wood whatever is used in the construction of the building. The interior will be well filled with reinforced concrete tanks and concrete or mezzanine floors are at proper elevations to suit the process of bleaching. The bleaching tubs used are 22 feet wide, 45 feet long and seven feet deep, each having a capacity of eight tons of dried pulp. A reinforced concrete storage reservoir for the pulp bleach liquor will also be provided.

Lockwood's Directory of the Paper, Stationery and Allied Trades for 1917 contains more changes than have ever been made in any edition. Order now.

Starch

ECONOMY can never be mistaken for cheapness. In the matter of sizing material starch is cheaper than an all glue size, yet the results are identical—in fact, the paper made with starch sizing is stronger.

We make two kinds of starch—a special starch for beater sizing, and a special starch for surface sizing. The starch can be used with any grade of paper or board.

Our experts can show you how this starch can be used advantageously in your mill. They will gladly call on request.

Write for information.

CORN PRODUCTS REFINING CO.
Mill Starch Department
17 Battery Place New York City

Starch

MADE IN DETROIT

Cadillac
Sulphate Alumina

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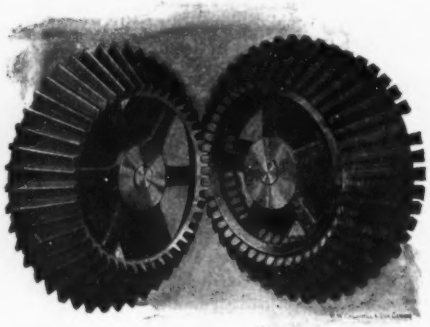
Limited Offerings for Prompt Acceptance

DETROIT CHEMICAL WORKS
Detroit, Mich.

MORTISE WHEELS
SPUR, BEVEL AND MITER



Castings of semi-steel by our improved method of machine molding, thus insuring uniform tooth spacing, true rims and smooth running, with high efficiency. Teeth of both Mortise wheel and pinion finished by accurate gear cutting machinery.

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OF WATER WHEEL HARNESS

H. W. Caldwell & Son Co.
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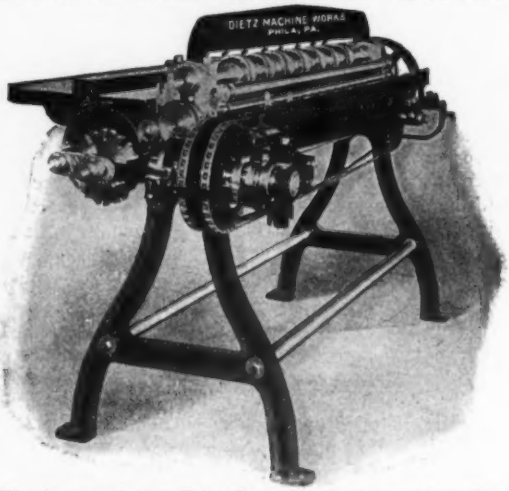
THE "DIETZ" ROTARY CARD CUTTING AND COLLATING MACHINE



We also manufacture Toilet Paper Machines for making Toilet Paper Rolls with or without perforations, and for making Sanitary Crepe Paper Towels, Automatic Tube Machines for making Tubes for Toilet Paper Rolls, Slitting and Rewinding Machines, Drop Roll Slitters, Side and Center Seam Merchandise Envelope Machines, Photo Mount Beveling Machines, Candy Bag Machines, Punch Presses for Playing Cards, Etc. CORRESPONDENCE SOLICITED.

DIETZ MACHINE WORKS
126-128 Fontain St., Philadelphia, Pa.
Corner Waterloo St., Below Diamond St., Bet. Front and 2d Sts.

Obituary

Arthur E. Wright

Arthur E. Wright, secretary of Perkins-Goodwin Company, Inc., and vice-president of the National American Pulp and Paper Companies, died of tuberculosis on Wednesday morning at Asheville, N. C., where he had gone a week ago. Mr. Wright had been ill for some time, but his trouble was more acute about a month ago. It was not, however, until last Thursday that the doctors diagnosed his case as tubercular. He is survived by his widow.

Mr. Wright was born in New York in 1871, and spent most of

ARTHUR E. WRIGHT

his life in this city. He has for many years been one of the best known men in the paper industry and his many friends and former business associates were shocked at his sudden death.

For some years Mr. Wright was vice-president of the International Paper Company and later as salesmanager for the same company. He was considered one of the foremost movers of paper in the industry. During the latter part of September, 1916, Mr. Wright severed his connection with the International to become secretary of Perkins-Goodwin Company, Inc., paper and pulp dealers, with offices at 33 West Forty-second street, New York City. Shortly afterward he was elected vice-president of the North American Pulp and Paper Companies. These positions he held at the time of his death.

Charles H. Usher

On Thursday, February 1, occurred the death, at his home in Brooklyn, of Charles H. Usher, cashier of George W. Millar & Company, paper jobbers of this city. Mr. Usher had served the firm faithfully for forty-three years, having first become connected with it in 1874, when it was located at 10 Spruce street.

Charles H. Usher was born at Staatsburg, N. Y., in September, 1849. Most of his boyhood was spent in the town of Rhinebeck, where he began his business career as a drug clerk. Coming to New York at the age of twenty as an entry clerk with a drug firm, he spent about five years in various positions before he joined the house of George W. Millar & Co. as bookkeeper. For the past twenty years he has been cashier, and at the time of his death was the oldest employee of the firm. Until six months ago that distinction had been held by W. H. May, who was a year older in the business than Mr. Usher himself.

Mr. Usher was forced to give up active work as the result of a paralytic stroke last June, and it was a third stroke which caused his death at his Brooklyn home, 165 Bainbridge street. He is survived by Mrs. Usher and three children.

D. F. MUNROE COMPANY CELEBRATES

Thirty-eight of the department heads, office force and salesmen of the D. F. Munroe Company, Boston, Mass., had another annual celebration on Wednesday evening, January 31. They gathered around the famous round table in the Colonial ballroom of the Colonial Club, 20 Quincy Street, Cambridge, selecting that place in compliment to A. W. Blackman, President and Treasurer of the D. F. Munroe Company, who happened to be the President as well of the Colonial Club.

The chef, with his able corps of assistants, with the authority of a carte-blanche order, established a record in the way of a feast in the opinion of all present. Between each course there was a vaudeville act, and readers, singers, colored artists and banjo players vied with the talented members of the home talent in endeavors to get the most applause.

Guessing and voting contests with prizes, reading of statistical sheets and roll of honor records for the year, were mixed in with chorus singing and strains of the orchestra. It was expected that there would be an exceedingly close contest when the vote was called for the handsomest man present, but when the votes were counted it was found that the handsome silver cup, suitably inscribed, "The Handsomest Man of D. F. Munroe Company, 1917," was awarded, by thirty-seven votes, to Harry J. Dowd, familiarly known in the trade as "Handsome Harry."

At nine-thirty all signs of the banquet had been removed and the hall was cleared for dancing. At twelve o'clock, when the party broke up, it was unanimously voted the most successful gathering ever had.

WESTINGHOUSE COMPANY TO HAVE NEW PLANT

Announcement has just been made by the Westinghouse Electric and Manufacturing Company that the plot of ground recently purchased at Essington, near Philadelphia, will form a new industrial center for the Westinghouse Electric interests. The site embraces about 500 acres, with a frontage of approximately one mile on the Delaware river. Additional transportation facilities will be afforded by tracks from the Pennsylvania and Philadelphia and Reading Railroads.

This new center will be devoted to the production of large apparatus, the first group of buildings being for power machinery, principally steam turbines, condensers, and reduction gears. The initial development will cost in the neighborhood of $5,000,000 or $6,000,000 occupying about one-fifth of the area of the entire plot. The group will consist of the following buildings: two large machine shops, an erecting shop for heavy machinery, forge shop, pattern and pattern-storage shop, and power house. Work will begin on these as soon as satisfactory building contracts can be let.

The number of employes to be engaged at the new plant has not yet been definitely determined but will number several thousand people, and undoubtedly will in the future equal the number employed at East Pittsburgh, representing over 20,000 people

GOES WITH CARSO CO., OF DANSVILLE, N. Y.

C. H. Shaneley has resigned his position as superintendent of the E. C. Robertson and Sons mill of Ashuelot, N. H., and has accepted a position as superintendent of the Carso Paper Company, of Dansville, N. Y.

Mr. Shaneley has had many years' experience in the manufacture of tissue and cardboard. He is considered exceptionally good on these grades.

The Heller & Merz Co.

New York. Works: Newark, N. J.

Branches: Chicago Philadelphia Boston

We can furnish all

AVAILABLE COLORS

to advantage.

CALENDERS

FURNISHED COMPLETE, WITH ELECTRIC MOTOR LIFT, HYDRAULIC LIFT OR RATCHET LIFT, ALL OPERATED FROM FLOOR.

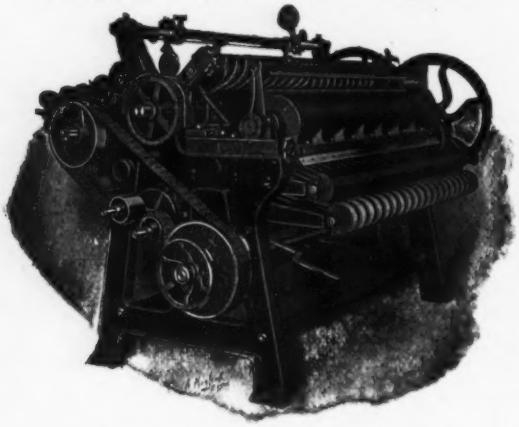
Grinding Machines for Rolls of all sizes.

Lobdell Car Wheel Co.

Wilmington, Del., U. S. A.

Paper Cutters

Single, Duplex and Diagonal



CUTTER KNIVES

Patent Top Slitters

HAMBLET MACHINE CO.

Lawrence, Mass.

"SAFETY FIRST" "MADE RIGHT IN AMERICA"

"NATIONAL ROPE DUPLEX"

made especially for wrapping Book Papers, etc., is the strongest Waterproof Case Lining Paper in the world. Made in either sheets or rolls. Send for samples.

NATIONAL WATERPROOFING COMPANY

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"DRAPER" FELTS

For Any Grade of Paper or Pulp

ARE GUARANTEED

To Give Entire Satisfaction

MANUFACTURED BY

DRAPER BROS. CO., CANTON, MASS.

Paper Mills on Pacific Coast All Busy

Principal Increases in Pacific Coast Production in 1917 Will Come From Starting Up of Large New Paper Plant of Pacific Mills, Inc., at Ocean Falls, B. C., in the Spring—Zellerbach Paper Company Has Convention of Its Branch Managers—Crown Willamette Paper Company's Mills All Busy.

The new year opened with all of the paper mills on the Pacific Coast operating up to capacity, and oversold on all kinds and grades of paper, and with prospects of such conditions continuing indefinitely. Although prices are considerably higher than a year ago, the principal mills are faithfully filling their long-term contracts, made when prices were very much lower, and depending upon other orders to make up as far as possible for the tremendous increases in the cost of chemicals and materials used in paper manufacturing.

In the case of news print paper required by the big newspapers in California the mills sell at a delivered price, and they have been put to increased expense during the past few months owing to the car shortage, advanced freight rates and scarcity of steamer tonnage on the coast. So the high prices now prevailing for paper are not yet making millionaires of the paper manufacturers. However, the shortage of paper everywhere is stimulating the industry, and every possible effort is being made to increase the output of the pulp and paper plants on the coast, and several new enterprises are under serious consideration by capitalists.

Perhaps two of these projects are likely to be actually carried out, although the year or more that will be required to fill new orders for the equipment of a paper mill will prevent the product of such plants from being a factor in the market for a long time to come.

Principal Increases on Coast

The principal increases in the Pacific Coast's production of paper expected during 1917 will come from the starting up of the large new paper mills of the Pacific Mills, Ltd., at Ocean Falls, B. C., in the spring, and the completion of the addition to the plant of the Hawley Pulp and Paper Company at Oregon city, Ore. San Francisco and Portland capitalists who are interested in the Crown Willamette Paper Company, control the plant at Ocean Falls. A considerable amount of paper, including some kraft, will be exported from the new mill.

The foreign demand continues to be much greater than the Pacific Coast exporters can take care of, but there has been a marked increase in the volume of exports during the past year, principally from mills in British Columbia controlled to a large extent, by San Francisco capital. While the supply of offshore tonnage is better than it was a few months ago, freights and insurance rates are extremely high, making the delivered price to the consumer a pretty stiff one. Australia and New Zealand are now consuming increased quantities of Pacific Coast news paper and many small shipments are made to South America. Japanese buyers anticipated their future demands long ago and stocked up heavily, so that the demand from Japan was very slack during the past few months.

The Zellerbach Paper Company's Convention

The Zellerbach Paper Company, which usually holds an annual convention of its forces in May, called its branch managers to the city in January this year. The sessions, which were held at the San Francisco Commercial Club, lasted for several days, the windup being a banquet, attended by the officers, department heads and managers of branches of the company.

In addition to I. Zellerbach, the president, and the heads of departments of the main house in San Francisco, and a number of the salesmen, the convention was attended by the following managers of branches of the Zellerbach Paper Company: D. E. Stewart, First street branch, San Francisco; J. E. Ady, Oakland branch; J. Y. Baruh, Los Angeles branch; R. J. Kelleher, Richmond Paper Company, Seattle, Wash.; W. D. McWaters, Pacific Paper Company, Portland, Ore.; F. R. Philbrook, San Diego branch, and William G. Lambert, the Lambert Paper Company, Salt Lake City, Utah.

One of the most interesting features of the convention took place on Friday evening in the large dining room of the Commercial Club, when a number of the employing printers of San Francisco accepted the Zellerbach Paper Company's invitation to meet with their salesmen and listen to an instructive address by C. W. Chabot, advertising manager of the Hammermill Paper Company, of Erie, Pa. Vice-President Wilson of the Hammermill Paper Company, also gave a short talk on the special activities of his concern. B. Levison, advertising manager for the Zellerbach Paper Company, was chairman of the evening.

Great Western Electro Chemical Co.

The Great Western Electro-Chemical Company, the pioneer concern of its type on the Pacific Coast, declared on January 13 an initial semi-annual dividend at the rate of 7 per cent. per annum on its holdings. Although the plant, located at Pittsburg, Cal., began operations only six months ago, a large business in bleaches for paper mills and other lines of chemicals has been built up, and double the amount of business could be done if the plant had a larger capacity.

A remarkable feature of this concern is that it sells all its output to just seven customers, chiefly large manufacturing companies. Mortimer Fleishhacker, president of the Great Western Chemical Company, said in an interview at San Francisco: "Our plant is running at its maximum capacity, and we are turning out daily twelve tons of caustic soda and twenty-six tons of bleaching soda. We have notified our stockholders that we propose to increase the capacity of our plant about 25 per cent. in 1917, in order to manufacture other chlorine products. The principal one of these will be carbon-tetra-chloride. This substance is in great demand by oil refiners for utilization as a solvent.

Eaton, Crane & Pike Co.

Manager Willoughby, of the Pacific Coast branch of the Eaton, Crane & Pike Company, located at 770 Mission street, San Francisco, is quite optimistic as to the prospects for 1917 business. The coast prospects for crops are very good, and the line of this house is now well introduced. Last year's business was exceptionally good on all of the lines of this house. There was a big holiday trade. Although a good clean-up was made there was stock enough on hand to prevent any shortage.

(*Continued on page 359.*)

YOUR PROBLEMS

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CASEINE — SODA ASH
High Grade Electrolytic Bleaching Powder
CHEMICAL SPECIALTIES

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Bichromate Potash	Salt Cake	Ammonia
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Permanganate Potash	Potato Flour, Starch and Dextrine	Zinc Oxide (Imported)
		Trisodium Phosphate

VEGETABLE TALLOW
(For Preventing Foam)

Mechanical Filters

GRAVITY AND PRESSURE TYPES

All Sizes, to Suit Locations
No Proposition too Large or Small

WRITE OR WIRE
WE WILL CALL ON YOU

NORWOOD ENGINEERING COMPANY
FLORENCE, MASS.

HUNGERFORD FILTERS

The Filters that never require a renewal of the Filter Bed
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Engineers and Manufacturers of Water Filters
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All Grades of PAPER and BOARDS
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Don't Guess at Important Matters
BOWSHER'S SPEED OR MOTION INDICATOR
IS INDISPENSABLE
In obtaining a UNIFORM speed of machinery, and is one of the most PROFITABLE little devices ever put in a mill. Will pay for itself in 30 days. Dial 12 in. in diam. Weight, 10 lbs.
THE N. P. BOWSHER CO., South Bend, Ind.

Specialists in Rubber Covered Rolls

ONE QUALITY ONLY THE HIGHEST
We cover and furnish complete all the different kinds of rubber covered rolls that are used in the manufacture of paper.
We solicit your inquiries, and if you will address same as follows, they will receive prompt attention.
THE AMERICAN WRINGER COMPANY
Address Dept. D. WOONSOCKET, R. I.

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Absolutely Free from Arsenic or Selenium

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Calcasieu Parish, Louisiana

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ALL TYPES **PAPER MILL MACHINERY**

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Wet Machines, Stuff Pumps, Water Pumps, Finishing Cutters, Bundle Cutters, Etc.

REWINDERS

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Best in the Market. Write for Information.

BELOIT IRON WORKS
Established 1858. BELOIT, WIS., U. S. A.

Big Development in Toronto District

Expansion and Improvement in Pulp and Paper Industry of Ontario and the West Have Kept Pace with Those of Eastern Canada—The Developments Have Been All the More Remarkable in View of the Unusual Times the Dominion Has Been Undergoing—Some of the Work Done.

Written for the Annual Number of the Paper Trade Journal

The developments in the paper industry in the matter of increasing the capacity of various mills and planning for expansion during 1917 have kept pace in the Ontario district and the west with the activity in Eastern Canada. Indeed, with the three mills planned for Lake Superior sites and the McArthur mill at Winnipeg and the Pacific Coast enlargements, with the Mattagami coming into operation, Quebec must look to its laurels. The development has been the more remarkable as in 1916 Canada was straining herself for more than in 1915 to do her share in the great struggle in Europe, and facing all industrial development is the likelihood of a further scarcity of labor with which to contend. It all goes to show that, backed by national resources that have scarcely yet been touched, confidence in the future of the pulp and paper industry is so deep seated as to draw capital probably to any other "native-born" industry.

Some of the Improvements

Reference has been made elsewhere to the Mattagami Pulp and Paper Company's new mill. The Ontario Paper Company, Thorold, completed a sulphite plant with a capacity of 50 tons a day. Two digestors, each 15 x 49 feet, and two acid towers, each 116 feet in height, are among the equipment. A new paper machine room was also completed, 273 x 100 feet. A third Fourdrinier has been set up and will be in operation next month. A timber crib deck, 400 feet long, was completed for the loading of wood pulp. A 104-inch cylinder wrapper machine is now being installed. Another machine with 50-ton capacity will be operating next year.

The Northumberland Paper and Electric Company, of Campbellford, whose plant was burned down a year ago, and who received a municipal loan, has the new board mill of much increased capacity in running order. The new 6-cylinder board machine, 66 inches wide, of the Downington Manufacturing Company will turn out 25 tons of board each day. The machine room is 300 x 50 feet; the beater room 125 x 45 feet, and the digestor room 50 x 28 feet, with 3 digestors 14 feet in diameter.

Improvements at Brampton

A doubled capacity is the record of Gummed Papers, Ltd., of Brampton, Ont., for 1916. An addition to the plant, 60 x 40, was made during the year, and machinery added for making waxed paper and waterproof case linings. The company is planning to turn out flat papers for the printing trade this year.

The Dryden Timber and Power Company, of Dryden, Ont., added 15 tons of Kraft pulp to its daily capacity the past year. It is planning to increase this by 10 tons daily in 1917. A new warehouse, steel and brick, 160 x 95 feet, and a new finishing room were added during 1916. A 110-inch Fourdrinier is being installed and to accommodate the beating equipment, a new beater room, 90 x 60 feet, is being erected.

The Abitibi Power and Paper Company, whose splendid fire equipment saved not only its plant but scores of lives from destruction during the holocaust in Northern Ontario last year, have been going on steadily with their immense developments. One of these, the harnessing of power at Twin Falls, will require until October next to complete. One month later the two 232-inch paper machines, the largest in the world, will be ready for business. The sulphite plant will be in operation in three or four months.

Developments for 1917

Among the other developments for 1917 the most extensive is that of the Lake Winnipeg Paper Company, which recently has been incorporated with capital stock of $5,000,000. The new plant will be erected at Grand Rapids, 150 miles north of Winnipeg. Four machines, each 158-inch, will be installed with a capacity of 200 tons daily of news print. It will be some 18 months before the mill is in operation. With the surplus power a ground wood mill also will be operated.

In the city of Winnipeg a 60-ton board mill, with a 136-inch cylinder machine, will be built, and this will be producing by the Fall.

The Don Valley Paper Company has increased its output nearly 100 per cent during the past year. This included some higher grades in bristols, covers, etc. A filtering system with a daily capacity of 1,000,000 gallons, was installed.

The Spanish River Pulp and Paper Company has big extensions under way at all of its three mills, Espanola, Sault Ste. Marie and Sturgeon Falls.

Improvements at Sault Ste. Marie

At the Sault Ste. Marie plant a new 110-inch Black and Clawson cylinder wrapping machine will be working next month, with a capacity of over 35 tons daily. A third digestor is being put in, 17 x 54 feet, bringing the capacity to 105 tons daily. At Sturgeon Falls six new grinders will be installed, increasing the output to 90 tons a day. A statement issued by the company estimates the output of news print by next Fall at 500 tons daily, placing it in the third rank on this continent and the largest in Canada.

PACIFIC COAST MILLS BUSY

(*Continued from page* 357.)

Despite the advances in prices the higher-priced goods sold very well, and there was no falling off in the high-class trade. From June 1, 1916, to date the coast business of the Eaton, Crane & Pike Company showed an increase of over 100 per cent. over the period from June 1, 1915, to the same date in 1916.

Inland Empire Paper Co.

R. S. Talbot's resignation as manager of the Inland Empire Paper Company, of Spokane, took effect on January 1, and it is understood that W. A. Brazeau is in charge of the plant for the present. The company is well supplied with orders and expects to do an increased business in 1917 with the increased facilities due to the completion of a sulphite mill. It is announced that the company has purchased timber lands valued at approximately $100,000 in the vicinity of Bonners Ferry, Idaho. This increase in timber holdings will assure the Inland Paper Company of a supply of pulp wood for many years to come.

NASHVA QVALITY

SANITARY BREAD

WAXED PAPERS

"Strictly Germ Proof"

Everybody insists nowadays on carefully wrapped bread that is fresh and clean. Nashua Quality Waxed Bread Wrappers are produced to meet this demand. They are sanitary, air-tight, odorless, insuring perfect cleanliness and all possible freshness for their contents.

Samples and quotations on request.

WAXING DIVISION
Nashua Gummed & Coated Paper Co.
NASHUA, N. H.

Patented { June 24, 1913 / August 10, 1915

GRISSINGER

Patented

AUTOMATIC TUBE MACHINE

Wire Stitched Tube

TOILET PAPER MACHINERY

GRISSINGER MACHINE WORKS
PHILADELPHIA, PA.

EDWARD J. SMITH

75 PIKE SLIP,
NEW YORK

Fills all orders promptly

FOR

Old Rags & Waste Paper

Wire, Write or Phone

KNOWLTON WALL BOARD CUTTER

Cuts to length all kinds of heavy Sheet Stock, Fiber and Wall Board. Gives

Uniform Sheet Lengths
No Buckling of Web

Write today for complete information

M. D. Knowlton Co.
22 Elizabeth St., Rochester, N. Y., U. S. A.

BUSH, BEACH & GENT, Inc.

80 Maiden Lane, N. Y.

CHEMICALS

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GREAT WESTERN ELECTRO-CHEMICAL COMPANY
Pittsburg, California

BLEACHING POWDER

The Elixman Paper Core Co., Inc.

Successor to

THEODORE ELIXMAN

Manufacturer of Paper Cores

Standard Paper Cores with Steel Ends

3 INCHES, 4 INCHES

Good for at least 50 round trips
Saves 2-3 freight over iron cores
Weighs 2 lbs. to ft. as against 7 lbs. iron core
Any length up to 84 inches. Any diameter

Export Cores a Specialty

Corinth, N. Y.

The Longest Runs

are always made with the "Hamilton Felt"—absolutely the best results are obtained from its use. No wrinkling, no slack edges, "no blowing" — runs equally well on fast or slow machines. Send us a trial order now, with particulars as to stock used, quality of paper made and speed of machine.

SHULER & BENNINGHOFEN
Hamilton, Ohio

For reliable running and average long life

Lindsay Fourdrinier Wires

ARE UNSURPASSED

We make them for the largest and fastest machines. Cylinder Wires all sizes.

The Lindsay Wire Weaving Co.
COLLINWOOD STA CLEVELAND, OHIO.

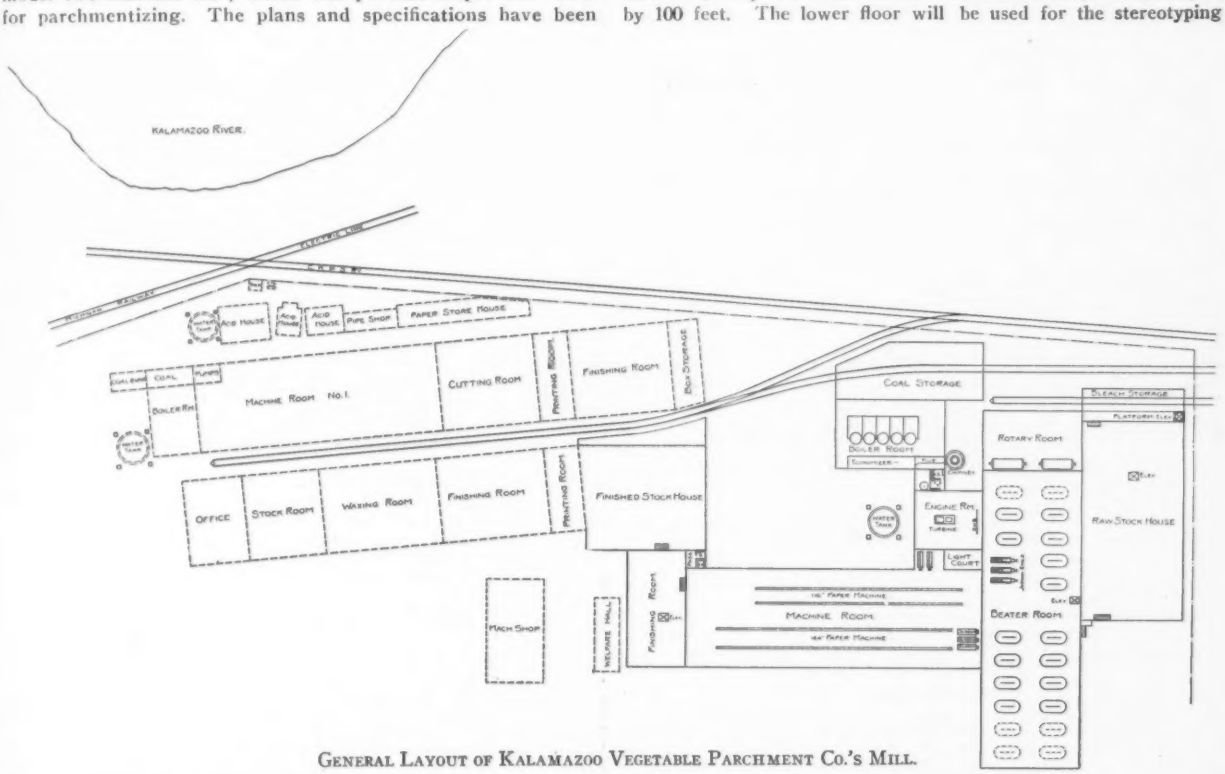
KALAMAZOO VEGETABLE PARCHMENT CO.'S MODEL MILL

Written for the Annual Number of the Paper Trade Journal by H. P. Hall

The year 1916 marked the greatest expansion in the Kalamazoo Vegetable Parchment Company, Kalamazoo, Mich., since its organization in 1909. A 50 per cent. stock dividend increased the capital stock to $500,000, while an additional issue of $500,000, bringing the total to $1,000,000, was far over-subscribed when offered for sale.

To Provide for Model Two-Machine Mill

The funds so derived are being used in the erection of a model two-machine mill, which will provide ample raw stock for parchmentizing. The plans and specifications have been prepared by M. C. J. Billingham, architect and engineer. They provide for a mill that can be operated at a minimum of expense, at the same time insuring a maximum of efficiency. Mr. Billingham was assisted in his early work by G. G. Worden, who had charge of all the preliminary work of determining the grades, setting the heavy foundation bases and boring several artesian wells.



GENERAL LAYOUT OF KALAMAZOO VEGETABLE PARCHMENT CO.'S MILL.

The campaign to secure an ample supply of the purest water was crowned with unusual success. The daily pumping capacity is in excess of 5,000,000 gallons, enough to supply the demands of a city of 75,000 inhabitants. Secure in the matter of an ample water supply and with an ideal location from every other standpoint, Jacob Kindleberger, president of the Vegetable Parchment Company, has been doing everything in his power to hasten the completion of the new mill.

The mill is located immediately north of the parchmentizing and printing plants. The provisions are ample for a two-machine mill with a weekly capacity of 250 to 275 tons.

The raw stock house and sorting and dusting departments will occupy a building 200 by 84 feet in dimensions, four stories and basement. The bleach room is two stories, 28 by 84 feet, and mounted on concrete pillars so that it forms a storm shed for the unloading of raw stock in bad weather. The rotary room is two stories and basement, 48 by 80 feet. The beater room and machine room each one story and basement, 80 by 240 feet in dimensions. The finishing room is two stories and basement, 48 by 80 feet and the finished stock house, two stories, 84 by 100 feet. The lower floor will be used for the stereotyping and electroplating and art departments. The turbine room is 48 by 56, the boiler house 56 by 88, the pump and feed water heating room 24 by 18, two stories and basement, and the oil house 24 by 18 feet. Adjoining the boiler house is a concrete coal supply pit, 12 feet deep and 50 by 150 feet in size, which will carry a coal supply ample for forty days' steady run. This is to insure against a possible fuel shortage.

Over 200,000 Square Feet of Floor Space

The construction provides considerably over 200,000 square feet of floor space. The basements are really first floors, being raised above the ground. All are light and airy. The buildings are fireproof. All the floors and abutments are concrete, while the side walls are of brick. Steel sash will be used in the windows and steel trusses for the roof.

The handling of the raw stock has been simplified. The sulphite and soda pulp are unloaded on floors the same elevation as the beater room floors and the stock is carried directly through to the washers and beater. Rag stock will be

EFFICIENCY ENGINEERING BY EFFICIENT ENGINEERS

FREDERICK L. SMITH

5 Beekman Street, New York

PULP AND PAPER MILL ENGINEER

HARDY S. FERGUSON

CONSULTING ENGINEER

MEMBER AM. SOC. C. E.
" AM. SOC. M. E.
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PAPER, PULP AND FIBRE MILLS, INCLUDING BUILDING AND COMPLETE MECHANICAL EQUIPMENT, WATER POWER DEVELOPMENT, DAMS, STORAGE RESERVOIRS AND OTHER HYDRAULIC STRUCTURES.

EXAMINATIONS REPORTS. ESTIMATES OF COST. DESIGNS. SPECIFICATIONS. VALUATIONS.

STEBBINS ENGINEERING & MFG. CO.

WATERTOWN, NEW YORK.

SULPHITE MILL EQUIPMENT

Acid Systems, Sulphur Burners, Digester Linings, Reclaimers and Digester Brick.

PULP & PAPER MILL ENGINEERS.

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Our reports are the result of the honest work of experienced men. We deal in facts.

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OLD TOWN MAINE

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Mill Architects and Engineers

SPECIALTY SULPHITE MILLS.

Consultation for Operation and Construction of old and new mills. Thorne Reclaiming System—Tower Systems—Vacuum Systems—Cooking Processes—Pyrites Burner plants.

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MILL ARCHITECT AND INDUSTRIAL ENGINEER

Paper, Groundwood and Chemical Pulp Mills
Chemical Processes

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THOMAS L. TOMLINES

CONSULTING ENGINEER

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Steam Power Plants, Plans and Specifications, Efficiency Engineering

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Mill Architect and Consulting Engineer

SPECIALTY:

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Plans and Specifications
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Consultation

Langdon Building
309 Broadway, New York

Cable Address: "Hardistock." A B C, 5th Edition, Bedford McNeill, Western Union.

JOSEPH H. WALLACE & CO.

Consulting
Industrial Engineers

Temple Court Building New York

New Birks Building Montreal

VITALE & ROTHERY

FOREST ENGINEERS

527 Fifth Avenue New York, N. Y.

ANDERSON & JONES, Inc.

ENGINEERS, ARCHITECTS, APPRAISERS

CARTHAGE, N. Y.

Specialists in Paper and Pulp Mill Design and Appraisals for Financial Purposes.

Twenty Years' Experience

P. B. SADTLER

SODA & SULPHATE

PULP MILL ENGINEERING

53 W. JACKSON BLVD. CHICAGO

PULP and PAPER

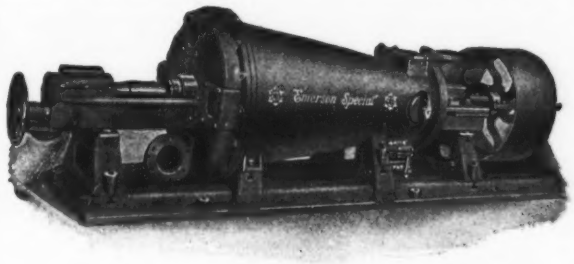
Scientific Control and Investigation

EMERSON LABORATORY

145 Chestnut St.

SPRINGFIELD MASSACHUSETTS

EMERSON MANUFACTURING CO. LAWRENCE MASS.



See the Second-Hand Machinery ads and note the ABSENCE of

EMERSON BEATING ENGINES

They seldom wear out and are never thrown out.
PERFECT CIRCULATION, NO "PADDLING"

The "EMERSON" JORDAN

does its work with half the power required by others of no greater capacity.

WRITE FOR DETAILS.

FRANKLIN PAPER CO., HOLYOKE MASS.

Manufacturers of

Index Bristols, White Bristol Blanks, Etc.

Cable Address: "Agico," New York. Telephone: 6680 Hanover.

Packing Mark

L. H. A.

PAPER MANUFACTURERS' SUPPLIES

GUNNY

and

JUTE BAGGING

a specialty

LOUIS H. ABENHEIMER

60 Wall Street, New York

AGALITE FILLER

UNITED STATES TALC CO.

GOUVERNEUR NEW YORK

VERA ROSIN SIZE

Guaranteed to Be Absolutely Clean and Pure

SHIPPED IN BARRELS and TANK CARS

OUR VERA PAPER SIZE

is the purest, strongest and highest free rosin size made. We can furnish you with an ideal rosin size and patented apparatus to use same.

OUR VERA MILL SIZE

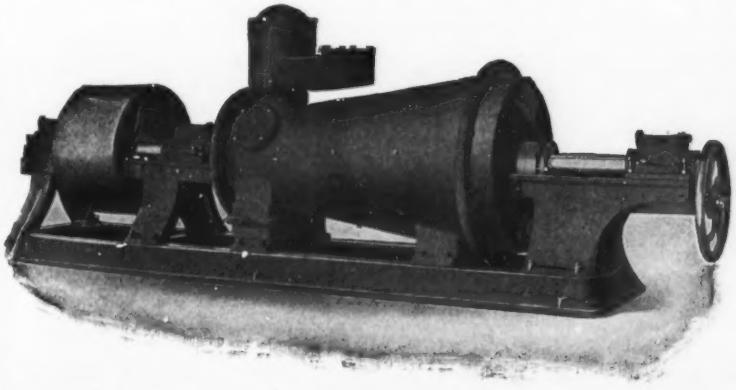
is the best soluble paper makers' rosin size made. Ready to use in cold or warm water in the ordinary way without apparatus. Gives better satisfaction and is more economical than mill made size.

Our sizings are cleaned by our new patented process, and we guarantee this Size to be absolutely clean, without the least speck of impurity in the same, preventing thereby black specks in the paper.

VERA CHEMICAL COMPANY

North Milwaukee, Wis. Stoneham, Mass.
Burlington, Ont., Canada

THE DILLON JORDAN



Our latest Improved Machine, three sizes; belt or direct connected motor driven. All Bearings self-oiling, adjustable and water-cooled. Outside stand fitted with gauge to keep the plug central with the shell.

For full particulars apply to

DILLON MACHINE CO., Inc.

Builders of Paper Mill Machinery

Lawrence, Mass.

handled on the upper floors, being elevated to the sorting and dusting room, where they are handled and discharged by gravity to the cookers below. The rag equipment consists of one fan duster, one wheat duster, one thresher and two cutters, all the product of the Norwood Engineering Company.

The incoming bleach is unloaded from the cars and elevated to a floor on the level with the top of the mixing tanks. It is mixed and dropped by gravity to a storage tank, and from there distributed by gravity to different points in the mill. Two rotaries, 8 by 24 feet, built by the Biggs Boiler Works, Akron, Ohio, will be installed, room being provided for two additional. Stock is discharged from the rotaries into a portable conveyor, which stores the cooked rags and allows them to cool. The rags are removed from storage when needed by an overhead trolley system and discharged directly into the washers.

The Machinery Equipment

J. H. Horne & Sons Company, Lawrence, Mass., are building the washers and beaters. Four 1,500-pound washers will be installed, with space for two additional. There will be ten 1,500-pound beaters, and four more can be placed if required. Three Jones majestic jordons complete the equipment of the beater room.

The machine room equipment calls for two machines. One of these is a 165-inch fourdrinier, manufactured by Pusey & Jones Company. This is the largest machine in America devoted to the manufacture of high-grade paper. The second is a 116-inch Harper Fourdrinier, the product of the J. H. Horne & Sons Company. Direct connected to these paper machines are two variable speed engines, product of the Ames Iron Works, Oswego, N. Y. There is a Hawkins overhead crane in the machine room to handle heavy weight.

The turbine room is equipped with one 1250 k. w. turbine generator set of the bleeder type. There is also a marble switchboard, all being the product of the General Electric Company.

In the boiler house are five 300 horse-power Wickes boilers of the vertical water tube type. Each one is equipped with a Murphy stoker. These stokers are supplied from overhead concrete bunkers, the bunkers being charged with coal by means of a locomotive crane. Green fuel economizers and Foster superheaters are part of the equipment. The ashes are handled by the steam jet system, which discharges the ashes into an elevated recovery tank, from which cars or wagons can be loaded through a shute.

All Modern Conveniences

The equipment of the mill will be electrically driven throughout, the two paper machines alone excepted, the entire electrical equipment being furnished by the General Electric Company.

A reinforced concrete chimney, 275x7 feet, is to be erected.

The new mill will have many conveniences that will appeal to the workers. There will be sanitary toilets, shower baths, rest rooms, locker rooms and a first aid to the injured room. A color scheme has been adopted for the interior. All the machinery is to be in wine color, striped with white. The baseboards will be battleship gray, with a black stripe. Above this the walls and ceilings will be white. Enamel will be used exclusively in painting, thus insuring a mill that is clean and sanitary at all times.

The piping of all kinds for the mill is being furnished by the Bond Supply Company, Kalamazoo.

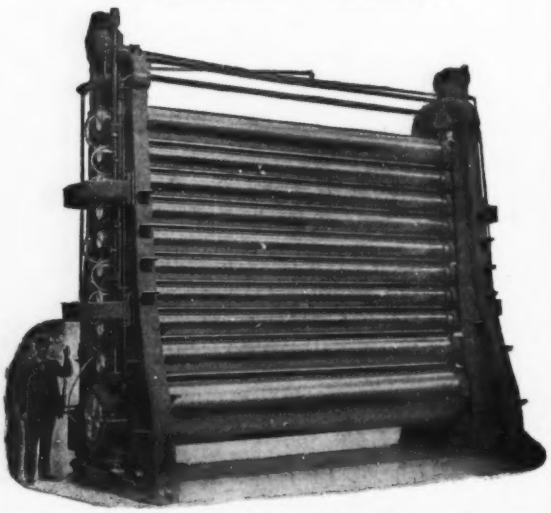
The parchmentizing and waxing plants under operation give employment to 160 hands.

Farrel Foundry & Machine Co.

ANSONIA, CONN., U. S. A.

LARGEST MANUFACTURERS IN THE WORLD OF

CHILLED ROLLS



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WITH PATENT HYDRAULIC LIFT

ROLL GRINDING MACHINES

PARSONS PULP & LUMBER COMPANY MANUFACTURERS OF

High Grade Bleached and Unbleached

TISSUE, BOOK, **SULPHITE** WRITING PAPERS

EDWIN J. DEWEY, Manager Pulp Sales

MILL: Parsons, West Virginia.

OFFICES: 1807-10 Finance Bldg. Philadelphia, Pa.

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FOR THE PAPER MAKER

Manufactured by

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QUALITY SERVICE

Sole Selling Agents

ISAAC WINKLER & BRO.

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Quick Opening, Square & Flat

Paper Bags & Sacks

Samples and Quotations on request

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Chemical **WOOD PULP** Mechanical

Importers and Exporters of
All Kinds of

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NEW YORK OVERSEA CO., Inc.

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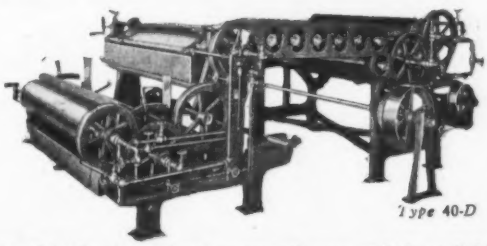
Las Palmas	*Rio de Janeiro*	*Hong-Kong*	*Melbourne*

Wax Paper Coating Machines

Carbon Paper, Gumming and Gluing Machines



Type 40-D

Will make all kinds of waxed and waterproof paper with finest finish and fastest speed.

MAYER COATING MACHINES CO., - Rochester, N. Y.

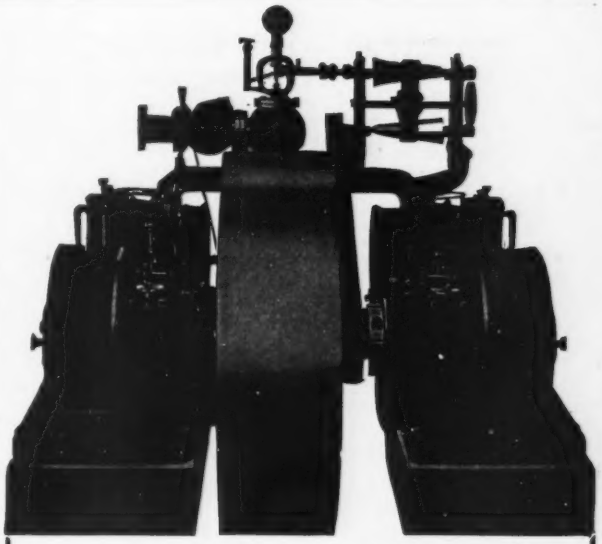
PAPER MAKERS CHEMICAL CO.

EASTON, PA.

Three centrally located factories insures you lowest delivered price on cloth filtered rosin size in tank cars, drums or barrels.

SATIN WHITE, CLAYS, ROSIN SIZE

Factories: Easton, Pa.; Kalamazoo, Mich.; Holyoke, Mass.



Probably You're Still Using An Antiquated Drive For Your Paper Mill

Maybe it's a set of cone pulleys or maybe it's a big cumbersome speed changing device that's full of racks and pains.

Sit down and make a few figures

Perhaps you know how much time you lose each week just in order to make a shift in speed, or because the drive contains some weak sister that needs to be bolstered up. Then figure how much more production you could get if you didn't have to stop your machine to make changes in speed, or if you had a drive that was absolutely reliable and "on the job" all the time.

The Ball Variable Speed Engine

is just that kind of a drive.

Write for our Bulletin

BALL ENGINE CO., Erie, Pa.

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THREE GRADES

PROMPT DELIVERY

SAMPLES ON REQUEST

HARRY C. SHEEHY

52 Broadway New York

Imports and Exports of Paper and Paper Stock

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

WEEK ENDING FEBRUARY 6, 1917.

NEW YORK IMPORTS

WEEK ENDING FEBRUARY 6, 1917.

SUMMARY.

Miscellaneous paper	271 cs.
Cigarette paper	527 cs.
Wrapping paper	347 cs.
Filter paper	33 cs.
Wall paper	13 cs.

PAPER.

Keuffel & Esser Co., Basse Terre, Bordeaux, 16 bs.
R. F. Downing, by same, 30 bs.
Butler & Co., Fred. VIII, Copenhagen, 129 bs.
R. F. Downing, by same, 96 bs.

CIGARETTE PAPER.

American Tobacco Company, Rochambeau, Havre, 26 cs.
P. J. Schweitzer, by same, 10 cs.
Schinasi Bros., by same, 2 cs.
Japan Paper Co., by same, 12 cs.
C. Drucklieb, by same, 5 cs.
Rose & Frank, by same, 17 cs.
Surbrug & Co., by same, 24 cs.
Kaufman Bros. & Co., by same, 7 cs.
American Tobacco Company, Basse Terre, Bordeaux, 230 cs.
P. J. Schweitzer, by same, 25 cs.
Liggett & Myers Tobacco Co., by same, 94 cs.
P. Lorillard & Co., Penmorvah, Havre, 50 cs.
Liggett & Myers, by same, 25 cs.

WALL PAPER.

A. C. Dodman, Jr., Cedric, Liverpool, 13 cs.

WRAPPING PAPER.

D. S. Walton, Fred. VIII, Copenhagen, 347 cs.

FILTER PAPER.

Zuikeisen Co., Basse Terre, Bordeaux, 33 cs.

Wood Pulp.

Castle, Gottheil & Overton, Minsk, Copenhagen, 800 bs., 100 tons.
American Wood Pulp Corp., Fred. VIII, Copenhagen, 1,600 bs., 250 tons.
J. Andersen, by same, 5,040 lbs., 650 tons.
E. Butterworth, by same, 144 bs., 15 tons.

Caseln.

T. M. Duche, Nogama, Montevideo, 200 bags, 42,500 lbs.
Atterbury Bros., Kentuckian, Buenos Ayres, 792 bags, 174,240 lbs.
T. M. Duche, by same, 2,400 bags, 968,000 lbs.
T. M. Duche, Hesperides, Buenos Ayres, 1,200 bags, 264,000 lbs.

Rags, Paper Stock, Etc.

A. Katzenstein, Huttonwood, Barcelona, 625 bs. paper stock.
E. J. Keller Company, by same, 223 bs. paper stock.
R. F. Downing, by same, 23 bs. paper stock.
P. Berlowitz, Basse Terre, Bordeaux, 71 bs. rags.
Solomon Bros. Co., Noordam, Rotterdam, 419 bs. rags.
R. F. Downing, by same, 213 bs. bagging.
Guaranty Trust Co., by same, 43 bs. bagging.
Castle, Gottheil & Overton, Bovic, Manchester, 116 bs. old picking.
Castle, Gottheil & Overton, by same, 182 bs. old rope.
L. H. Abenheimer, by same, 30 bs. bagging.
Castle, Gottheil & Overton, by same, 65 bs. bagging.
E. J. Keller Company, Penmorvah, Havre, 29 bs. rags.
Castle, Gottheil & Overton, Cavour, Manchester, 62 bs. bagging.
Castle, Gottheil & Overton, by same, 97 bs. glue stock.
Castle, Gottheil & Overton, Helig Olav, Copenhagen, 100 bs. newcut.
Castle, Gottheil & Overton, by same, 529 bs. rags.
Castle, Gottheil & Overton, by same, 254 bs. bagging.
Castle, Gottheil & Overton, by same, 507 bs. old rope.
E. J. Keller Company, Collingham, 58 bs. rags.
E. J. Keller Company, Colorado, Hull, 318 bs. rags and bagging.
E. J. Keller Company, Arizona, 24 bs. cotton waste.

BOSTON IMPORTS

WEEK ENDING FEBRUARY 6, 1917.

Paper Stock.

International Purchasing Co., Cambrian, London, 423 coils manila rope.
T. D. Downing & Co., by same, 131 bs. paper stock.
Bird & Son, by same, 241 bs. roofing rags.
T. D. Downing & Co., by same, 61 bs. paper stock.
Bemis Bros. Bag Co., by same, 180 coils manila rope.
True, McClelland, Galileo, Hull, 154 bs. flax waste.
Hollingsworth & Vose Co., by same, 252 coils manila rope.
International Purchasing Company, by same, 670 coils manila rope.
International Purchasing Company, Canadian, Liverpool, 274 coils manila rope.
Edwin Butterworth Company, by same, 47 coils manila rope.
Maurice O'Meara Company, by same, 80 bs. roofing rags.
Edwin Butterworth Company, by same, 136 bs. paper stock.

Hide Cuttings.

Edwin Butterworth & Co., Canadian, Liverpool, 510 bags.

Wood Pulp.

M. Gottesman & Son, Harbinger, Liverpool, 6,284 bs., 1,256 tons.

Rags, Paper Stock, Etc.

International Purching Company, Galileo, Hull, 25 bs. paper stock.
E. Butterworth, by same, 45 bs. paper stock.
Hollingsworth & Vose Company, by same, 252 bs. old rope.
International Purchasing Company, by same, 522 bs. old rope.
True & McClelland, by same, 109 bs. flax waste.

BALTIMORE IMPORTS

WEEK ENDING FEBRUARY 6, 1917.

Wood Pulp.

M. Gottesman & Son, Helsingborg, Sundsvall, 5,000 bs., 1,000 tons.

PHILADELPHIA IMPORTS

WEEK ENDING FEBRUARY 6, 1917.

Rags, Paper Stock, Etc.

E. J. Keller Company, "Manchester Exchange," 112 bs. bagging.

EXPORTS

FOR WEEK ENDING FEBRUARY 6, 1917.

CARBON PAPER.

France	$1,141
Portugal	951
Dutch West Indies	8
Brazil	156
Venezuela	20
Dutch East Indies	120
Australia	662
British West Africa	27
Norway	696
Cuba	49
British South Africa	87
England	2,783
Ireland	176
Guatemala	10
Jamaica	326
Japan	533
Salvador	156
Argentina	169
Brazil	5
Peru	744
Philippine Islands	48

PAPER BOARD.

Cuba	$6,071
Dutch West Indies	32
Brazil	2,136
Dutch East Indies	172
Australia	5,150
French West Indies	73
British South Africa	1,996
Bermuda	25
Korea	148
Japan	284
England	$1
Guatemala	80
Jamaica	180
Colombia	69
Panama	164
Argentina	3,822
Paraguay	895
Philippine Islands	512
Portuguese Africa	1,163

PAPER HANGINGS.

Sweden	$212
Haiti	118
San Domingo	82
British West Indies	5
Colombia	767
Argentina	38
Ecuador	553
Peru	65

PRINTING PAPER.

Dutch West Indies	$118
Brazil	12,747
Venezuela	4,517
Azores	85
England	10,117
Honduras	1,402
Salvador	70
Cuba	34,452
Dutch East Indies	1,287
Australia	25,217
New Zealand	825
Bermuda	116
British West Indies	45
French West Indies	150
Uruguay	9,932
British South Africa	4,267
Norway	200
Argentina	48,304
Colombia	4,931
San Domingo	1,165
Haiti	30
Japan	3,055
Jamaica	2,593
Chile	1,777
Canada	111
Guatemala	1,227
Ecuador	5,343
Peru	5,940
Japan	297
Panama	1,020
Bolivia	1,163
China	30,059
Philippine Islands	2,546

WRAPPING PAPER.

Bermuda	$20
Honduras	823
Cuba	4,354
Dutch West Indies	45
Venezuela	30
Dutch East Indies	7
Australia	476
British West Indies	137
French West Indies	84
British South Africa	710
England	5,546
Panama	2,382
Salvador	336
Haiti	953
San Domingo	758
British Honduras	34
Guatemala	175
St. Pierre	91
Jamaica	274
Colombia	2,789
Ecuador	975
Egypt	438
China	11,705

WRITING PAPER.

Finland	$150
Portugal	717
Bermuda	385
Honduras	153
Nicaragua	403
Salvador	715
Cuba	5,294
Dutch West Indies	20
Brazil	1,570
Venezuela	231
Dutch East Indies	1,299
Australia	648
Barbados	9
British West Indies	100
French West Indies	29
British South Africa	3,127
Italy	16
England	287
Panama	4,220
Jamaica	1,437
Danish West Indies	474
Ecuador	858
Peru	90
Uruguay	1,538

(Continued on page 373.)

THEODORE HOFELLER & CO.
BUFFALO, N. Y.
Carefully assorted Paper Stock, Rags and New Clippings
Buyers of
BRASS WIRE CLOTH, BRASS SCREEN PLATE, SCRAP BRASS,
PAPER MILL FELT, BAGGING & BURLAP BALING,
SECOND-HAND BAGS.

WILLIAM B. DILLON J. SANFORD BARNES
DILLON & BARNES
Paper Mill Products and Supplies
52 VANDERBILT AVENUE NEW YORK
Telephone, 7353 Murray Hill

MARX MAIER
200 FIFTH AVENUE NEW YORK
FOREIGN AND DOMESTIC:
NEW AND OLD LINEN AND COTTON RAGS,
JUTE STOCKS AND RAG PULP
PACKING PLANT: MANNHEIM, GERMANY

Atterbury Brothers
(INCORPORATED)
Wood Pulp, Rags and Paper Stock
French Caseine
145 NASSAU STREET (Potter Building) NEW YORK
ESTABLISHED 1851.

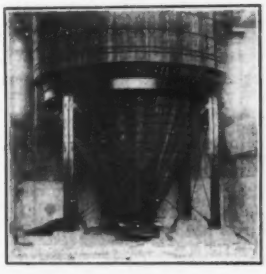
IRA L. BEEBE CYRUS E. JONES
IRA L. BEEBE & CO.

132 Nassau St., New York
IMPORTERS OF
Wood Pulp
AGENTS FOR
Konigsberger Zellstofffabrik A. G. Konigsberg
Germany.
MANUFACTURERS OF
Unbleached Mitscherlich Sulphite Pulp.

E. J. KELLER CO., Inc.
E. J. KELLER, Pres.
200 FIFTH AVE. NEW YORK
Importers and Dealers
New and Old Cotton and Linen Rags,
Gunny Bagging, Burlap Bagging,
Ropes, Flax Waste, Cotton Waste,
Paper Stock, Wood Pulp and
Rag Pulp.
Inquiries Solicited

FOREIGN AND DOMESTIC
CASTLE, GOTTHEIL & OVERTON
Paper Stock
New Cuttings
AND
Rags
Jute
Stock,
Sizing, Sulphite
and Soda Pulps
200 FIFTH AVE., NEW YORK

Salomon Bros. & Co.
Importers of all Grades of Rags and Paper Stock
299 BROADWAY
New York
Representing GEBR. SALOMON & CO., Harburg, Hamburg, Germany.
SALOMON FRERES, Lille, France. GEBR. SALOMON, Hanover, Germany.
SALOMON BROS., LTD., Manchester, England; Bombay, India; Milan, Italy.

NEW ENGLAND TANK & TOWER CO.

WOOD TANKS
FOR ALL
PURPOSES
Everett Station, Boston, Mass.

Rossendale Reddaway
BELTING AND HOSE CO.
NEWARK, N. J.

Niagara Paper Mills
LOCKPORT, N. Y.
FINE COVER PAPERS AND
HIGH GRADE SPECIALTIES
Mat, Lining, Coating and Album Papers; Duplex Papers, Plain and Watermarked; Black Papers of Every Description.

Want and For Sale Advertisements

Minimum rate for advertisements of 25 words or less, first insertion $1.00.

Situations Wanted, 4 cents a word for first insertion and 2 cents a word for each subsequent insertion of same ad. No ad of less than 25 words taken.

Help and Miscellaneous Wants, and small For Sale Ads, 4 cents a word for each and every insertion. No. ad of less than 25 words taken.

Answers can be addressed care Paper Trade Journal, and will be promptly forwarded without extra charge. All should be sent to the New York office, 10 East 39th street. And all should be addressed as the advertisement directs in every case and not simply to the paper.

Cash must accompany order.

HELP WANTED

WANTED, FIRST CLASS CYLINDER MACHINE TENDER, one thoroughly familiar with high test container board. Wages $4.50 per day and bonus. Also back tender, wages $3.00. State age and experience in first letter. Address Box 193, care Paper Trade Journal.

WANTED FOREMAN TO TAKE CHARGE OF PAPER BAG FACTORY. Must be experienced on flour and cement sacks. Address Box 194, care Paper Trade Journal.

YOUNG MAN, TO MANAGE RAG AND PAPER STOCK DEPARTMENT in New York paper house. State experience and salary desired. Address Box 196, care Paper Trade Journal.

HAVE NEW SIDELINE FOR COMMISSION SALESMEN or house thoroughly familiar with unusual and usual uses of corrugated board and cardboard. Address Box 8, Evansville, Ind.

WANTED:—Experienced salesmen for a wholesale paper house. Address Box 197, care Paper Trade Journal.

MACHINE DESIGNERS:—TWO THOROUGHLY COMPETENT MACHINE designers, preferably with experience on equipment such as used in paper mills or concerns handling paper, printers, bookbinders, box, envelope, bag or paper specialty manufacturers. Preferably, but not necessarily, with experience on design of winding or rewinding machines. Only men of first class ability and experience as designers need apply. Position permanent for the right men. Address Letter giving record and terms. Interview may then be arranged. to Cameron Machine Co., Brooklyn, N. Y.

MASTER MECHANIC WANTED for two machine board mill. State age, references and salary wanted. Address Box 142, care Paper Trade Journal.

MILLWRIGHT WANTED for board mill, Eastern state. Good position for sober, reliable man. Address Box 143, care Paper Trade Journal.

NIGHT BOSS WANTED FOR TWO MACHINE BOARD MILL IN EASTERN STATE. Address Box 199, care Paper Trade Journal.

Three double lighter wooden tub beaters, rolls, 44" x 44", located at Monroe, Mich. Immediate delivery.

Three 800 lb. iron tub beaters located at Morris, Ills. Delivery in ninety days.

The Shartle Bros. Machine Co.
MIDDLETOWN, OHIO

HELP WANTED

COATING MILL HELP WANTED BY MILL STARTING NIGHT TOUR—Coating room foreman, calender tour boss, coating machine and calender runners. Forty-eight hour week, five nights, steady work and good pay for competent men. Address Whitmore Mfg. Co., Holyoke, Mass.

NIGHT FOREMAN WANTED for board mill making approximately 30 tons per day. Must be a steady, reliable man. Apply with references to Box 206, care Paper Trade Journal.

WANTED ONE GOOD CYLINDER MACHINE TENDER for felt mill. Good wages, steady work, eight hours. Address John Lang Paper Co., Philadelphia, Pa.

FRICTION GLAZED PAPER FINISHER WANTED. Must be experienced in finishing coated paper for glazing on friction calenders. Must be temperate and reliable. Address with references to Box 171, care Paper Trade Journal.

FLINT OR STONE GLAZING FINISHER WANTED, must be reliable and experienced in finishing coated paper on flint glazing machines. Must be of steady habits and temperate. Address Box 172, care Paper Trade Journal.

WANTED EXPERIENCED BUYER AND SALESMAN for rags and paper stock. Must have thorough knowledge of domestic and foreign values. A man having confidence in his ability will not hesitate to give references. We want only the best. Address in confidence to Box 174, care Paper Trade Journal.

WANTED IMMEDIATELY, salesman for clay coated box boards and blanks. Applications confidential. Address United Paperboard Co., 171 Madison Ave., New York.

MACHINE TENDER WANTED—For small cylinder machine on box board and wrapping in eastern Connecticut. Steady work, two tours. Address Box 147, care Paper Trade Journal.

MILLWRIGHTS—WANTED two first class paper millwrights, steady work for the right men. Mill well located. Only competent men need apply. Give full particulars, age and experience, first letter, references required. Address Box 112, care Paper Trade Journal.

ONE BACK TENDER AND TWO FINISHERS WANTED for combination box board mill, no labor troubles, highest wages paid right man. Address St. Clair Paper Co., Capac, Mich.

WANTED BOSS BEATER TENDER FOR FELT MILL. Good wages, steady work, eight hours. Address John Lang Paper Co., Philadelphia, Pa.

WANTED A GOOD MACHINE TENDER on cylinder tissue, all stock papers, slow running machines. Good position to the right man. Address Box 178, care Paper Trade Journal.

WANTED, GOOD SOBER, STEADY MACHINE TENDER ON BOX BOARD. Good wages. Address Box 187, care Paper Trade Journal.

SITUATIONS WANTED

SALESMAN WITH TRADE FOLLOWING IS OPEN FOR POSITION, as manager of sales and salesman, with a good mill making either stock for set up box or folding or both. Address Box 195, care Paper Trade Journal.

WANTED, POSITION AS SUPERINTENDENT having had twenty years' experience in the manufacture of book, bond and colored specialties in both United States and Canada. Forty years old, can give good references. Address Box 200, care Paper Trade Journal.

(Continued on page 369.)

FOR SALE

PAPER MACHINE—One 92" Fourdrinier Paper Machine, first and second presses, gun metal and rubber rolls; 10 dryers, 36" x 86"; Calenders, Reel, Slitter, Marshall drive.

CALENDERS—1 72", 1 68", 1 54" Stack of Chilled Calenders.

PAPER CUTTERS—1 120" Horne, 1 88" Horne, 1 84" Finlay, 1 84" Dillon, 1 80" Finlay with Hamblet drive, 1 43" Finlay.

REAM CUTTERS—1 55" Seybold, 1 48" Acme, 1 48" Cranston, 1 38" Cranston.

JORDANS—2 Jordans, refilled, ready for immediate delivery.

SCREENS—2 Baker & Shevlin Centrifugal Screens, 4 Packer Improved 12 plate open side screens.

BEATERS—2 Jones 1,000 lb.; 1 Downingtown 1,000 lb.; 2 Clark & Spencer 1,200 lb.; 3 Jones 500 lb.

PRESSES—2 Boomer & Boschert Hydraulic Presses; 4 Boomer & Boschert Hydraulic Board Presses.

ROTARIES—4 Portland Co. Rotaries, 7' x 21' 6", good to operate 100 lbs. pressure, shell ¾", heads 1".

WET MACHINES—2 Sandy Hill, 4 Ticonderoga, 74" Wet Machines.

PUMPS—1 Connelsville rotary suction pump, 10" x 14"; 2 Lawrence 6" pumps; Goulds stuff pumps and suction pumps, various sizes.

Large variety gun metal, rubber Couch and Breast ROLLS; also chilled calender rolls and special rolls, various sizes.

FRANK H. DAVIS

175 Richdale Ave., No. Cambridge, Mass.

We have taken from our customers for whom we built new machinery a lot of which we have overhauled.

We enumerate below only a partial list.

Write us if there is anything else you want.

Beaters, two with rolls 65" dia. 54" bar, one with roll 48" dia. 54" bar, two 45" dia. 44" bar, two 40" dia. 40" bar, one 44" dia., 48" bar, three 40" dia. 48" bar, iron sides, one 49" dia. 48" bar, one 54" dia. 60" bar, one 54" dia. 54" bar. One Claflin Four new 61" dia. 48" bar, cypress sides. New Umpherstons, 48" dia. 60" bar. Calenders, three stacks 84", two 80", two 72" and many others. Cutters, one 43" Finlay, one 37" Finlay, 42" Moore & White, one 45" Finlay, one 112" Dillon. Coater, one 43" Waldron double coater. Cylinder Moulds, five 36" x 84", and other sizes. Chippers, two chipoers. Digesters, three digesters. Drives, eight Reeves' and other makes. Dryers, about 150 different sizes. Fourdrinier, one 136", one 84", one 80". Jordans, Emerson, Horne, Dillon, Marshall, Baby Jordan. Machines, one 84" machine with dryers 48" x 84", one 72" with 30—36" dia. dryers, and several others. Pumps, three duplex self-contained stuff pumps, three Triplex self-contained suction pumps, one 1000 gal. Worthington, also tank pump 10 x 16 x 16 x 18 Knowles, two large size Underwriter Fire pumps, fifteen fan pumps. Screens, three open side Packer screens 12 plates, 12 x 43", plates almost new, two 8 plate 12 x 43 Packer, one 8 plate 12 x 43 Baker and Shevlin, one single cylinder Wandel screen, thoroughly overhauled. Winders, 118" Single drum Beloit, 62" two drum Beloit winder, 120" Kidder rewinder and slitter, other makes and widths. Supercalenders, one 7 roll Granger stack, rolls 51" face, one 8 roll stack, rolls 84" face. Large lot of new split iron pulleys, sprocket chains. Some new wooden pulleys with friction clutches.

MILLS MACHINE CO.

LAWRENCE, MASS., U. S. A.

SITUATIONS WANTED

(Continued from page 368.)

CONNECTION WITH GOOD PULP FIRM desired by young Swede with thorough knowledge of import and export of all kinds foreign and domestic Wood Pulp. Best references and experience. Address Box 186, care Paper Trade Journal.

YOUNG MAN 38 YEARS OLD WISHES POSITION as fourdrinier machine tender or boss machine tender. Can furnish references. Good man to keep up machines. Address Box 207, care Paper Trade Journal.

FIRST CLASS CYLINDER MACHINE TENDER WISHES POSITION, fourteen years' experience on box boards, wrapping and bristols, two years as foreman, have good technical education. Married, steady and sober. Address Box 201, care Paper Trade Journal.

WANTED A POSITION AS BOSS MACHINE TENDER OR NIGHT BOSS in a mill making news or manila. Best references. Address Box 179, care Paper Trade Journal.

SUPERINTENDENT OF LARGE BOOK MILLS WANTS TO MAKE A CHANGE. Twelve years' practical experience as superintendent on all grades of paper. Best of references from past and present employers. Address Box 202, care Paper Trade Journal.

MAN WITH EXTENSIVE SELLING AND EXECUTIVE EXPERIENCE and wide knowledge of paper business desires mill representation or connection. Address Box 134, care Paper Trade Journal.

YOUNG MAN WANTS POSITION AS FOREMAN. Well up on all grades of felt, building and wrapping papers. Can handle help and get production. Address Box 181, care Paper Trade Journal.

WANTED BY AN EXPERIENCED CYLINDER MACHINE TENDER, POSITION on machine. Can get results on all grades of boards. First class references. Address Box 185, care Paper Trade Journal.

GROUND WOOD FOREMAN OR SUPERINTENDENT DESIRES POSITION fifteen years' experience. Can furnish best of references. Steady, sober and married. Understands repairs. Can get results. Address Box 180, care Paper Trade Journal.

MACHINE TENDER WISHING TO MAKE A CHANGE is now open for engagement. Married, steady and experienced on all grades of box board and manila. Can furnish references. Address Box 189, care Paper Trade Journal.

GROUND WOOD SUPERINTENDENT DESIRES POSITION. Experience in constructing, operating and maintaining, capable of handling men, able to take full responsibility to secure results. Temperate and reliable, can give best of references. Address Box 163, care Paper Trade Journal.

MANAGER, ASSISTANT OR SUPERINTENDENT, now employed desires to connect with progressive mill, particularly qualified on Soda Pulp, container and chip board. Best references and experience. Address Box 164, care Paper Trade Journal.

WANTED POSITION AS SULPHITE SUPERINTENDENT, have had twenty-five years' experience in American and Canadian mills. Forty-five years old, can furnish good references, married. Address Box 162, care Paper Trade Journal.

GRADUATED CHEMICAL ENGINEER well acquainted in digesting, and preparation of acid and modern development in all lines of sulphite industry in Sweden, wants position in manufacturing of sulphite pulp. Address Box 208, care Paper Trade Journal.

MISCELLANEOUS

WANTED—Embossing calenders for paper in rolls 24 or 36 inches wide. Give particulars and prices. Address Box 204, care Paper Trade Journal.

WANTED—Second hand rewinder. No slitters needed. Width twenty-four inches or wider. Address Box 205, care Paper Trade Journal.

WANTED:—Would like to interest capital in paper mill proposition, either active or investment. Large returns assured. Address Lock Box 425, Philadelphia, Pa.

ADVERTISER IS TAKING OUT during spring and summer of 1917 3/5000 cords Spruce pulpwood on freehold limits in Nova Scotia. If interested in contracting for output Address Box 203, care Paper Trade Journal.

FOR SALE:—Two Holyoke 49 1/2" flat cutters. Address Box 198, care Paper Trade Journal.

QUOTATIONS given on new cylinder molds. Large dandy rolls. Recovering a specialty. Twenty-five years' successful experience. Clark Mfg. Co., 79 Merrick Ave., Holyoke, Mass.

FOR SALE:—2 Packer Open Side Screens, 14 plate and 12 plate Screen Plates for the same 12x43 cut .012. Good condition. Can be seen running. 2 Columbia Kaukauna Slitting and Rewinding machines. One trims 106" and the other 80". For cutter and large jumbo rolls. Also 3 Split Shafts for each, 2 15/16 and 2⅝. 1 Iron Rotary Boiler, 18' long 6" in diameter with Drive. 72" Wet Machine parts. Frames and Cylinders, also Iron Press Roll. Lot of Split Iron Pulleys: Crown Face 34"-44"-54"-60" diameter, 10" to 18" face, 4 7/16" bore. Lot of Solid Pulleys: 48" diameter, 14" face, 4 7/16" bore
60" " 16" " 5 15/16" bore
72" " 16" " 4 15/16" bore, heavy wheel pulley. Shafting: 1 piece 11ft. x 4 7/16" keyed. Can be turned down to 3 7/16" 1 piece, 10ft. x 5 15/16" keyed. Can be turned down to 3 7/16". 1 piece, 7ft. x 5 15/16" keyed. Can be turned down to 4 15/16" 1 piece, 8ft. 10" x 4 7/16". Can be turned down to 3 7/16". 8 piece, 12ft. long 2¾" square shafting. 1 large cut Gear 43 teeth, 4" pitch 16" face, 5 1/2" bore. 1 large Mortise Gear, 49 teeth, 4" pitch, 16" face 5 15/16" bore. MCDOWELL PAPER MILLS, Manayunk, Phila.

I AM PRACTICAL and will put in ¼ of the capital required. Will guarantee to make news print at less than $30 per ton and 80 tons per day. I want one or more newspaper institutions to join me. Water transportation. Address Box 182, care Paper Trade Journal.

WANTED—Second-hand slitters, any make if in good condition. State price, full particulars. Address Box 167, care Paper Trade Journal.

WANTED—To interest a paper bag manufacturing company in an S. O. S. bag machine of high production and very low percentage of waste. Also an S. O. S. machine for the heavier grade paper bags. Address P. L. Bartholomew, R. D. No. 1, Box 168, Aurora, Ill.

FOR SALE—Mill at Rising Sun, Md., equipped with 7 2-inch fourdrinier machine, beaters, engines and ample steam and water power. Complete and ready to operate. Apply to The York Card & Paper Co., York, Pa.

TREASURY DEPARTMENT, Office of the Secretary, Washington, D. C., January 19, 1917. Sealed proposals will be received at this office until 2 o'clock p. m., Tuesday, February 20, 1917, from manufacturers of bond, bank-note and other fine papers for furnishing bank-note paper of the highest quality containing the distinctive feature now in use by the Department, for the printing of United States currency and other securities, national and Federal reserve bank notes, Federal reserve notes, etc., for the fiscal year beginning July 1, 1917. Blank forms for submitting proposals, with specifications and further information, will be furnished intending bidders upon application to this office where samples of the paper required may be examined. W. G. McAdoo, Secretary of the Treasury.

MISCELLANEOUS

FOR SALE—2 Iron tub beaters 44 x 48 rolls. Can make prompt delivery. Address Crescent Paper Co., Marseilles, Ills.

FOR SALE—Seven Moore rotary screens, complete with plates, ready for installation. Address Box 64, care Paper Trade Journal.

WANTED

Two good machine tenders and two back tenders in mill making writings, located in middle West, in excellent city, and running three shifts. Address Box 192, care Paper Trade Journal.

For Sale, Pulp and Paper Property

The owners of a well situated timber limit in the Province of Quebec, with Sawmills, etc., in good town on line of Canadian Pacific Railway, will sell outright.

Virgin cut of Spruce, White Pine and Hardwoods. Well watered.

Sufficient wood supply and undeveloped water power for a Sulphite mill of 12,500 tons annual capacity.

Wood rates to Northern New York points 12 cents per 100 pounds.

Principals only. No agents.

Apply—W. M. Langston, Post Office Box No. 3317, Montreal.

WANTED

Real Live Salesmen

Commission basis. No dead ones need apply. Address

Pickquick

Woolworth Bldg., New York

DO YOU WANT HELP?

Or have you some machinery you would like to dispose of?

Try the

JOURNAL'S "Want Pages"

They bring prompt returns.

WANTED.

Two men who know machinery, preferably equipment used either in paper mills or factories working on paper as a raw material such as printers, box makers, bag, envelope, or paper specialty manufacturers. One man as sales correspondent, the other as traveling salesman. Engineering degree not necessary, but right man must have character, ability, energy and above all a clean record. After instruction period salary $1500.00 per year increasing with ability. Before interview prefer letter outlining record.

CAMERON MACHINE COMPANY,
BROOKLYN, NEW YORK.

ATTENTION
Bag Manufacturers

An old established firm with 20 years' experience in Bag Line, well rated, Desires Agency for the Metropolitan Districts—on Square, Flat and Self-opening Bags.

Address Box 169, c/o Paper Trade Journal.

PAPER BAG MACHINERY
Flat and Square
Satchel Bottom
Single and Duplex all Rotary Machines

We guarantee very high production and very low percentage of waste.
Jobbers supplied with Bag Machines anywhere in the United States, any number, part payment down, balance of payment from one to five years, to responsible parties.
We claim to have the fastest machines made.

LOCKPORT MACHINE CO., Wm. Muirhead, Prop.
Lockport, N. Y.
TORONTO TYPE FOUNDRY CO., 76 York St., Toronto, Canada
Agents for Canada
CANADIAN-AMERICAN MACHINERY CO., London, England
Foreign Agents

Thousands of Economy Safety-First Portable Tiering Machines are in use every day—
they are all saving time, money and space.
Put one on your pay roll.

ECONOMY ENGINEERING CO.
419 So. Washtenaw Ave., Chicago.
Foreign Agents—Brown Portable Elevator Co., Chicago, Ill.

Our Want Column
will get rid of that surplus material you have on hand.

Others have tried it with great success.

WHY NOT YOU?

PAPER TRADE JOURNAL

SODA ASH and BLEACH
ALL CHEMICALS for Paper-makers' Use

MADERO BROS., Inc., Chemical Department, **115 Broadway, New York** Telephone: Rector 8840-8841

18 YEARS' EXPERIENCE IS BUILT INTO OUR
SLITTING AND REWINDING MACHINES
CAMERON MACHINE CO., BROOKLYN, N. Y.

JAMES COOKSON
STOCKPORT, ENGLAND
Packer of all kinds of
PAPER STOCK, BAGGING, SURAT TARES, Etc.

Kalamazoo Vegetable Parchment Co.
KALAMAZOO, MICHIGAN
Manufacturers of high grade parchment and waxed paper

Job Lots, Rejections, Side Rolls Wanted
We are prepared to pay SPOT CASH for jobs in paper, white or colors, any grade that will cut down to 11 x 17, weight from 13 lb. to 20 lb., Folio basis. Send us samples of what you have to offer, with lowest spot cash prices. No lot too small, and none too large.
OLD COLONY PAPER CO., 712 Federal St., Chicago, Ill.

PAPER STOCK
PACKERS OF ALL GRADES

Mendelson Bros. Paper Stock Co.
900 Michigan Blvd. Chicago, Ill.

When you want quantity and quality and lowest prices, write us.
Packing Houses and Warehouses, Chicago, Ill.

Directory

Cards under this heading will be charged for at the rate of $30 per annum for each card of three lines or less, payable in advance. Each additional line $10.

Architects and Engineers.

BIGELOW, WM. C., Architect and Engineer, Specialties Paper, Pulp, Fibre Mills, Hydro-Electric, Steam Power Plants, Biddeford, Maine.

CAREY, JAMES L., Paper Mill Engineer, New Mills. Improvements in Old Mills. Appraisals. 208 North 52d Avenue, Chicago, Ill.

CHAPMAN, C. A., Inc., Paper Mill Architects and Engineers.
28 Jackson Boulevard E., Chicago, Ill.

FERGUSON, HARDY S., M. Am. Soc. C. E., Consulting Engineer. 200 Fifth Ave., New York.

HARDY, GEO. F., M. Am. Soc. M. E., Consulting Engineer. 309 Broadway, New York

SNOW, S. M., Mill Architect, Engineer. Paper and Pulp Mills. Steam and Water Power plants. 55 Kilby Street, Boston, Mass.

STEBBINS ENGINEERING AND MFG. CO., Architects and Engineers. Paper, Pulp, Soda, Sulphate and Sulphite Mills. Power Developments. 39-40 Smith Bldg., Watertown, N. Y.

JOSEPH H. WALLACE & CO., Industrial Engineers,
Temple Court Building, New York.
Manufacturing Plants and Power Developments. Reports of Industrial Properties, Appraisals, etc.

Bale Ties.

WILSON, H. P. & H. F., Manufacturers of Steel Wire Bale Ties, for baling all compressible material. 544 West 22nd Street, New York City.

Boards.

MILLER PAPER CO., FRANK P., high grade specialties. Boards.
East Downingtown, Pa.

Forest Engineers.

P. T. COOLIDGE, Forest Engineer, Timber Estimating and Mapping, Boundary Surveys, Supervision of Lumbering and Stumpage Contracts. 31 Central Street, Bangor, Maine.

D. E. LAUDERBURN, Forest Engineer, Timber Estimates, Reports, Maps, Logging Efficiency Service, 1 West 20th St., New York.

Guaranteed Non-Curling Gummed Papers.

IDEAL COATED PAPER CO., Mills and Main Office, Brookfield, Mass. N. Y. Office 150 Nassau St. 452 Monadnock Bldg., Chicago.

Metal Skylights and Ventilators.

WE manufacture metal skylights and ventilators for paper and pulp mills. E. VAN NOORDEN CO., 944-52 Mass. Avenue, Boston, Mass

Patent Attorneys.

BALDWIN & WRIGHT, 25 Grant Place, Washington, D. C. Experienced in securing patents on paper machinery

Rags, Paper Stock, etc.

BERLOWITZ, PAUL,
132 Nassau Street, New York.
Importer of Rags, Bagging, New Cuttings

BOYLE, LUKE,
390 West Broadway, New York

CHASE & NORTON, High Grade Shavings and Book Stock a specialty.
277 Water Street, New York

FLYNN, MICHAEL,
54 Columbia Street, Brooklyn, New York

GOLDSTEIN, R., & SON,
Baltimore, Md.
Cotton Rags and Paper Stock

GRUNDY & SONS, LTD., JAMES, Chorley, England, supply new and old rags of highest quality for paper makers. Enquiries solicited.

HILLS, GEO. F.,
108-112 Cliff Street, New York

HOFELLER, THEODORE, & CO., 206 Scott Street, Buffalo, N. Y., buy Bagging and Burlap Baling from Paper Mills, also Second Hand Bags, Brass Wire Cloth, Brass Screen Plates Scrap Brass and Paper Mill Felts.

JACOB & CO., Alexander, Wapping, London, England. Supply all classes Waste Papers and Shavings, Paper Making Rags, etc. Correspondence Solicited. Paris Office, 3 Cite d'Hautville.

LANDAU, MARCUS, 150 Nassau St., New York. Exporter and Importer, Rags Paper Stock, also Domestic Stock. Correspondence solicited.

LIBMANN, JOSEPH, & CO.,
174, 176 and 178 Hudson Street, New York.
The only house in existence which deals EXCLUSIVELY IN NEW CUTTINGS of every grade and description.

LIVERPOOL MARINE STORE CO., Liverpool, England. L. M. S. Wood Tag, Manila, Rope and Star Brands (Registered).

McGUIRE, MICHAEL,
100 and 102 Tenth Avenue, New York.

SIMMON'S, JOHN, SONS, Paper and Paper Stock. 28 and 30 South Marshall Street (formerly Decatur Street), Philadelphia, Pa.

Special Machinery.

DIETZ MACHINE WORKS, experienced builders of special machinery with well equipped modern shop, can quote low prices in machine building. Send drawings, 126-128 West Fontaine Street, Philadelphia, Pa

SWIFT, GEORGE W., JR., Designer and Manufacturer of Special Machinery for Manufacturing and Printing Paper Goods. Bordentown, N. J.

Straw Pulp.

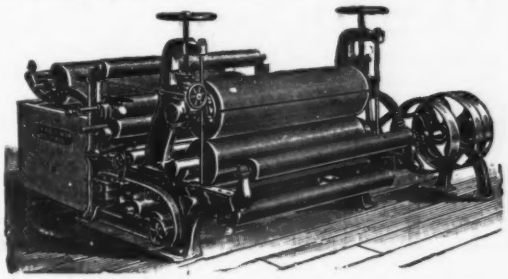
SCANDINAVIAN-AMERICAN TRADING CO., Produce Exchange, New York. All other kinds of Pulp.

H. C. CLARK & SON MACHINE CO.

Manufacturers of **PAPER MILL MACHINERY**

LEE, MASS.

Revolving Paper Cutters Rag Cutters Cylinder Paper Machines Washing and Beating Engines



Chilled Iron and Paper Calenders
Fan and Stuff Pumps
Engine Roll Bars and Bed Plates
Cylinder Molds
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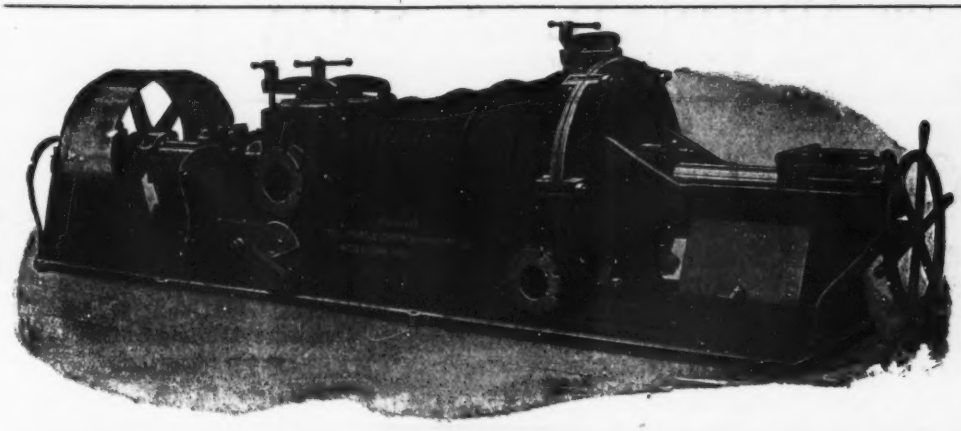
Rolls Reground

For quick results try the Want Columns of the Paper Trade Journal



THE
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Middletown, Ohio

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PRACTICAL QUESTIONS AND ANSWERS

FOR MILL MEN

A Department for the Solution of the Troubles, Large and Small, That Are Encountered by the Workers in the Mills in the Course of Their Duties in Making Paper and Pulp—All Mill Men Are Invited to Send in Both Questions and Answers—A Free Exchange of Ideas Is Desired—By Active Co-operation This Department Can Be Made a General Clearing House for Information in Regard to Practical Paper Making.

QUESTION No. 2,388.—I have noticed your examples in figuring machine production. The following is the form I use, which is very simple and accurate:

To find the production of a machine running 25x38—50/500 at 200 feet per minute, 75-inch trim, multiply 12 inches by 200, which gives the speed at which the machine runs per minute, or 2,400 inches. To find the speed per hour, multiply the speed per minute by 60, the number of minutes in an hour, which gives us 144,000 inches per hour. Since each sheet is 38 inches long and there are three sheets in the trim, the number of sheets may be found by dividing the speed per hour, 144,000 inches by 38, and multiply this quotient by 3, the number of sheets in the trim, which gives us 11,367 sheets per hour. It is plain that for every 38 inches that the machine runs, 3 sheets are made, and thus in running 144,000 inches, 11,367 sheets are made. As there are 500 sheets per ream, there are 11,367 ÷ 500, or 22,734 reams per hour, and as each ream weighs 50 pounds, 22,734 reams will weigh 22,734×50, or 1,136.7 pounds per hour.

To perform the entire operation and to have it more compact, the following is given:

```
    12 inches
   200
  -----
 2,400 inches
    60
  -----
144,000 inches

38) 144,000 (3,789
    114      3
    ---    ---
    300    500) 11,367 sheets per hour
    266         -----
    ---      22,734 reams per hour
    340        50
    304     -------
    ---   1,136.7 lbs. per hour
    360
    342
```

It is not necessary that the method be performed in the order in which it is given. For instance, the number of sheets per minute or the number of pounds per minute may be found and then the production per hour. Any change in the method of procedure may be made as long as it is not contrary to the formula:

$$\frac{\text{Machine speed} \times \text{number of sheets in trim}}{\text{Length of sheet} \times \text{number of sheets per ream}} \times \text{weight per ream} = \text{production per hour.}$$

In case a machine has not speed-recording device, the speed of the machine may be found by counting the number of dryer revolutions and multiply by the circumference of the dryer. For instance, a machine is running 24 dryer revolutions per minute, to find the speed multiply the circumference of dryer, which in a 3-foot dryer is 9.4248 feet, by 24, giving an answer of 226.1962 feet per minute or 226 feet per minute (approximately).

DRESDEN MILL MAY BE READY MARCH 1

It is hoped to have the new paper mill at Dresden, Ohio, ready for operation by the last of February, but the superintendent is unable to say definitely how soon the manufacture of paper will begin, owing to the delay in the shipments of machinery and material.

L. P. Gallagher, M. D. Custer, George M. Gray and other Coshocton men are financing the new industry at Dresden. The buildings are completely enclosed and the work of assembling and erecting the machines has advanced without interruption from the cold weather.

PORCUPINE PULP COMPANY INCORPORATED

Eddy E. Mansfield is president and secretary, and Amasa A. Oatman is treasurer of the Porcupine Pulp and Lumber Company, Ltd., which was this week incorporated at Toronto, Ont., under the laws of Ontario. Both officers are residents of this city. Mr. Mansfield recently returned from the Porcupine district, where he obtained leases on several hundred acres of the best timber lands. The entire ouput of the company will be used by the Cliff Paper Company of this city.

IMPORTS AND EXPORTS OF PAPER AND PAPER STOCK

(*Continued from page 366.*)

Guatemala	$576
Haiti	200
San Domingo	1,446
Canada	10
Newfoundland	443
Colombia	2,206
Argentina	1,388
China	134
Siam	214
Philippine Islands	2,643
British East Africa	300

PAPER.

Azores	$10
Portugal	15
Bermuda	45
Honduras	$1
Salvador	383
Cuba	5,612
Dutch West Indies	44
Brazil	5,920
Venezuela	1,364
Dutch East Indies	364
Australia	37
New Zealand	19
Norway	144
Barbados	7
British West Indies	27
French West Indies	88
British South Africa	775
British East Africa	357
Italy	174
England	877
Panama	$2,097
Argentina	784
Uruguay	338
Sweden	138
Nicaragua	30
Haiti	222
San Domingo	880
Canada	891
Guatemala	221
Newfoundland	308
Jamaica	15
Colombia	1,622
Japan	210
France	519
China	971
Straits Settlements	110
Philippine Islands	136

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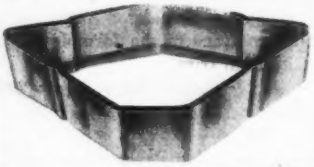

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ALPHABETICAL LIST TO ADVERTISERS

	Page.
Abenheimer, Louis H.	363
Advertisers Paper Mills	258
Albemarle Paper Mfg. Co., The	184
Allen Paper Co., A. C.	290
Alton Box Board & Paper Co.	290
American Coating Mills	302, 312
American Mineral Production Co.	332
American Steam Gauge & Valve Mfg. Co.	50
American Wood Pulp Corp.	94
American Writing Paper Co.	123
American Wringer Co.	358
Andersen & Co., J.	102, 312
Anderson & Jones	362
Appleton Machine Co.	379
Appleton Wire Works	88, 380
Appleton Woolen Mills	312
Arabol Mfg. Co.	106, 379
Arnold, Hoffman & Co.	372
Ashcroft Mfg. Co.	316
Atterbury Bros., Inc.	140, 367
Atterbury & McKelvey, Inc.	304
Badger Bag & Paper Co.	124
Badische Co.	90
Bagley & Sewall Co.	252
Baker Mfg. Corp.	350
Ball Engine Co.	365
Bauker, John W.	125
Beebe & Co., Ira L.	367
Beloit Iron Works	72, 73, 358
Berkshire Hills Paper Co.	282
Berlin Mills Co.	108, 308
Bermingham & Seaman Co.	280, 304
Biggs Boiler Works Co.	98, 99, 348
Bird Machine Co.	320
Black-Clawson Co.	176, 352
Blethen, Hugh R.	316
Bowsher Co., N. P.	358
Bredt & Co., F.	304
Brown Paper Co., L. L.	228
Browne & Stuart Co.	278
Bryant Paper Co., The	188
Buchanan & Bolt Wire Co.	250
Buffalo Foundry & Machine Co.	179, 180
Burgess Sulphite Fibre Co.	96, 350
Bush, Beach & Gent, Inc.	360
Butterworth & Co., Edwin	343
Cabble Excelsior Wire Mfg. Co., Wm.	4, 380
Caldwell & Son Co., H. W.	354
Cameron Machine Co.	48, 370
Cantasano & Bros., Vito G.	304
Capen's Sons, Inc., A. M.	358
Carew Mfg. Co.	240
Carter, Rice & Co. Corp.	270
Carthage Machine Co.	118
Casper Ranger Construction Co.	198
Castle, Gotthell & Overton	344, 367
Cataract Refining & Mfg. Co.	30
Central Mfg. Co.	348
Central Ohio Paper Co.	302
Champion-International Co.	14
Cheney Bigelow Wire Works	112, 316
Chicago Paper Co.	296
Clafflin Engineering Co.	142, 336
Clark & Son Machine Co., H. C.	371
Cohen, Victor	336
Collins Mfg. Co.	336
Continental Paper Bag Co.	196
Cookson, James	370
Corn Products Refining Co.	354
Coulston & Co., J. W.	374
Craig & Co., H. G.	242
Crane, Z. & W. M.	248
Crane & Co.	244
Crocker, Burbank & Co.	230
Cutter Mfg. Co.	212
Davis, Frank H.	368
Dayton Beater & Hoist Co.	341
Detroit Chemical Works	354
Detroit Sulphite Pulp & Paper Co.	160
Dexter & Sons, C. H.	182
Diamond State Fibre Co.	306
Dickinson, Thos. L.	379
Diem & Wing Paper Co.	280
Dietz Machine Works	12, 354
Dillon & Barnes	367
Dillon Machine Co.	58, 59, 363
Dilts Machine Works	314
Downingtown Mfg. Co.	40, 41, 378
Draper Bros. Co.	356
Dryden Timber & Power Co.	226
Eagle Knife & Bar Works	82, 346
Eastern Mfg. Co.	216, 316
Eastwood Wire Mfg. Co.	back cover, 380
Eaton-Dikeman Co.	62
Economy Engineering Co.	370
Elixman Paper Core Co.	360
Emerson Laboratory	362
Emerson Mfg. Co.	363
Esleeck Mfg. Co.	194
Ewing Co., H. Norwood	126
Fall Mountain Pad & Paper Co.	374
Falulah Paper Co.	298
Farrel Foundry & Machine Co.	364
Feculose Co. of America	144
Ferguson, Hardy S.	264, 362
Fitchburg Paper Co.	200
Forsythe-Harding Paper Co.	288
Forsythe Paper Co.	256
Fox River Paper Co.	278
Franklin Paper Co.	363
General Electric Co.	328
General Naval Stores Co.	156
Gilman & Co., I.	272
Gleeson, Thomas E., Inc.	312
Glens Falls Machine Works	344
Gottesman & Son, M.	9, 338
Graton & Knight Mfg. Co., The	324
Green Bay Paper & Fibre Co.	146
Grissinger Machine Works	360
Grundy & Sons, James	290
Gumbinsky Bros. Co.	380
Hamblet Machine Co.	42, 356
Hammermill Paper Co.	238, 334
Hampden Glazed Paper & Card Co.	288
Hampshire Paper Co.	240
Hardy, George F.	168, 362
Hardy & Sons Co., Wm. A.	27, 346
Harmon Machine Co.	379
Harrington & King Perforating Co.	338
Haverhill Box Board Co.	282
Heller & Merz Co.	356
Hill Clutch Co.	76
Hofeller & Co., Theo.	367
Hoggson & Pettis Mfg. Co.	127, 309
Hollingsworth & Vose Co.	224
Holyoke Machine Co.	22
Howard Paper Co.	186, 340
Huband & Nash Co.	308
Hubbs & Co., Chas. F.	266
Hudson Trading Co.	286
Hungerford & Terry, Inc.	358
Huyck & Sons, F. C.	84, 85, 322
Ideal Coated Paper Co.	308
Improved Paper Machinery Co.	322
Independent Die Co.	374
International Pulp Co.	74, 304
Interstate Clay Co., The	110
Interstate Pulp & Paper Co.	310
Jensen & Co., G. D.	362
Jessup & Moore Paper Co.	232
Kalamazoo Vegetable Parchment Co.	136, 370
Keith Paper Co.	71
Keller Co., E. J.	174, 367
Kimball, Herbert S.	362
Klipstein & Co., A.	358
Kneeland Co., Inc.	262
Knowlton Co., M. D.	360
La Boiteaux Co., C. L.	348
Langston Co., Samuel M.	34, 379
Leffel & Co., James	378
Lenhart, J. I.	304
Lindsay Wire Weaving Co.	54, 360
Little Co., Inc., A. D.	358
Lobdell Car Wheel Co.	154, 356
Lockport Machine Co.	370
Lombard & Co.	31, 308
Madero Bros., Inc.	370
Maier, Marx	367
Main Paper Stock Co., Inc.	374
Maine Coated Paper Co.	152
McEnery Paper Co.	296
McEwan Bros.	52
McMeekan Mfg. Co., David	374
McMahon & Co.	264
Mayer Coating Machine Co.	365
Marden, Orth & Hastings Co.	60, 344
Marathon Paper Mills Co.	56
Megargee-Hare Paper Co.	38
Meinecke, A. M.	24
Meisel Press & Mfg. Co.	379
Mendelson Bros. Paper Stock Co.	370
Merrimac Paper Co.	210
Millers Falls Paper Co.	132
Mills Machine Co.	254, 368
Miner-Edgar Co.	346
Mississquoi Pulp & Paper Co.	340
Morey & Co., Inc.	270, 304
Mountain Mill Paper Co.	302
Morse Chain Co.	326
Moulton Engineering Corp.	274
Munising Paper Co.	130
Napco Corp.	67
Nashua Gummed & Coated Paper Co.	100, 360
National Cash Register Co.	300
National Paper Supply Co.	266
National Waterproofing Co.	356
Neben Mfg. Co.	158
New England Tank & Tower Co.	148, 367
Newton Falls Paper Co.	272
New York Belting & Packing Co.	28, 29, 330
New York Color & Chemical Co.	36
New York Continental Jewell Filtration Co.	310
New York Oversea Co., Inc.	190, 365
New York Revolving Portable Elevator Co.	304
Niagara Paper Mills	367
Noble & Wood Machine Co.	86, 350
Northern Paper Mills	292
Norwood Engineering Co.	80, 358
Oakes Co., Roland T.	374
Odell Manufacturing Co.	340
Oglesby Paper Co., W. B.	16
Old Berkshire Mills Co.	276
Old Colony Paper Co.	370
Orono Pulp & Paper Co.	276
Orr Felt & Blanket Co.	104, 340
Orrman, H. L.	222
Oswego Falls Pulp & Paper Co.	292
Oswego Machine Works	344
Oval Wood Dish Co.	164, 336
Oxford Paper Co.	162
Pagel & Co., Inc., A. J.	304
Paper Makers Chemical Co.	134, 365
Paper Manufacturers Co.	379
Paper Mills Specialty Co.	70, 336
Parsons Paper Co.	262
Parsons Pulp & Lumber Co.	218, 364
Parsons Trading Co.	Inside front cover, 304
Paterson Parchment Paper Co.	172
Peck Paper Co., D. F.	250
Pennsylvania Salt Mfg. Co.	116, 380
Perkins & Sons, Inc., B. F.	284
Pettebone-Cataract Paper Co.	260
Pickles, W. F.	346
Pioneer Paper Stock Co.	348
Port Huron Sulphite & Paper Co.	298
Potdevin Machine Co.	306
Price & Pierce, Ltd.	304
Pulp & Paper Trading Co.	102, 310
Reeves Pulley Co.	344
Riordon Pulp & Paper Co., Ltd.	341
Riker, J. L. & D. S.	379
Rising Paper Co., B. D.	Inside back cover
Riverview Coated Paper Co.	268
Rossendale-Reddaway Belting and Hose Co.	367
Ryther & Pringle Co.	78, 79, 332
Sadtler, P. B.	362
Salomon Bros. & Co.	367
Sandusky Foundry & Machine Co.	92
Savery, Jr., Thos. H.	170
Scaife & Sons Co., W. B.	314
Scandinavian-American Trading Co.	64, 312
Schmidt Co., F. L.	306
Schorsch & Co.	150, 365
Sewall, James W.	362
Seybold Machine Co.	352
Shartle Bros. Machine Co., The	114, 115, 368, 371
Sheehy, Harry, C.	365
Shepard Electric Crane & Hoist Co.	314
Shuler & Benninghofen	360
S. K. F. Ball Bearing Co.	318
Smith, Edward J.	360
Smith, Frederick L.	362
Smith Paper Co.	290
Smith & Winchester Mfg. Co.	192, 378
Standard Paper Bag Co.	208
Star Clay Co.	350
Stearns Lumber Co., A. T.	379
Stebbins Engineering & Mfg. Co.	120, 362
Stresen, Reuter & Hancock Co., Inc.	374
Stuebing Truck Co.	294
Superior Chemical Co.	306
Swenson Evaporator Co.	128, 129, 310
Taylor-Logan Co., Papermakers	258
Taylor, Stiles & Co.	20, 166
Textile-Finishing Machinery Co.	18, 308
Thames River Specialty Co.	286
Ticonderoga Machine Works	44
Ticonderoga Pulp & Paper Co.	268
Tileston & Hollingsworth Co.	254
Tomlines, Thos. L.	362
Train, Smith Co.	304
Union Bag & Paper Corp.	274
Union Iron Works	344
Union Screen Plate Co.	32, 33, 314
Union Sulphur Co.	202, 358
Union Talc Co.	379
United States Envelope Co.	68, 69
United States Talc Co.	363
Van Noorden Co., E.	46, 310
Vera Chemical Co.	363
Vitale & Rothery	362
Voith Co., Inc, J. M.	334
Voorhees Rubber Mfg. Co.	340
Wallace & Co., Jos. H.	284, 362
Warren & Co., S. D.	220
Waterbury & Sons Co., H.	138, 139, 343
Waterbury Felt Co.	312
Waterous Engine Works Co.	236
Waterville Iron Works	306
Wausau Sulphate Fibre Co.	234
Western Paper Stock Co.	348
Weston Co., Byron	204
Whitaker Paper Co.	214
Whiting Paper Co.	260
Williams & Co., C. K.	380
Winkler & Bro., Isaac	364
Wray Paper Co., Douglas	206

SEE OVER FOR CLASSIFIED LIST OF ADVERTISERS

CLASSIFIED LIST OF ADVERTISERS

Page.

ALUM.
Detroit Chemical Works..... 354
Pennsylvania Salt Mfg. Co.....116, 380
Superior Chemical Co..... 306
Winkler & Bro., Isaac..... 364

ARCHITECTS AND ENGINEERS.
Anderson & Jones, Inc..... 362
Hardy S. Ferguson.....264, 362
George F. Hardy 168,362
Jenssen & Co., G. D..... 362
Kimball, Herbert S..... 362
Moulton Engineering Corp..... 224
Sadtler, P. B..... 362
Frederick L. Smith..... 362
Stebbins Engineering & Mfg. Co....120, 362
Tomlines, Thomas L..... 362
Vitale & Rothery..... 362
Joseph H. Wallace & Co.....284, 362

ASBESTINE PULP.
International Pulp Co.....74, 304

BALL BEARINGS.
S. K. F. Ball Bearing Co..... 318

BELTING.
Graton & Knight Mfg. Co., The..... 324
N. Y. Belting and Packing Co....28, 29, 330
Rossendale - Reddaway Belting and Hose Co. 367
Voorhees Rubber Mfg. Co..... 340

BLEACHING POWDER.
Arnold, Hoffman & Co., Inc..... 372
J. L. & D. S. Riker..... 379

BLOTTING PAPER.
Albemarle Paper Mfg. Co..... 184
Eaton-Dikeman Co..... 62

BOX BOARDS.
Alton Box Board & Paper Co..... 290

CALENDER ROLLS.
Farrel Foundry & Machine Co..... 364
Lobell Car Wheel Co.....154, 356
Perkins & Sons, Inc., B. F..... 284
Textile Finishing Machinery Co.....18, 308

CARBON TOOLS.
Thos. L. Dickinson..... 329

CASH REGISTERS.
National Cash Register Co..... 300

CASTINGS, BRONZE.
Wm. A. Hardy & Sons Co.....27, 346

CHAIN DRIVES.
Morse Chain Co..... 326

CHEMICAL EXPERTS.
The Emerson Laboratory..... 362
Arthur D. Little, Inc..... 358

CHINA CLAY.
Interstate Clay Co. 110
Miner-Edgar Co..... 346
Paper Makers' Chemical Co.....134, 365
Star Clay Co..... 380

COATED PAPERS.
American Coating Mills.....302, 312
Maine Coated Paper Co..... 152

COATING MACHINES.
Mayer Coating Machines Co..... 365

COLORS AND DYESTUFFS.
Badische Co. 90
F. Bredt & Co..... 304
Bush, Beach & Gent, Inc..... 360
J. W. Coulston Co..... 374
Heller & Merz Co..... 356
Klipstein & Co., A..... 358
Madero Bros., Inc..... 370
Marden, Orth & Hastings Co.....60, 344
New York Color & Chemical Co..... 36
Sheehy, Harry C..... 365
Stresen, Reuter & Hancock, Inc..... 374

Page.

CRANES AND HOIST.
Shepard Electric Crane & Hoist Co.... 314

CRANES AND TRAMWAYS.
Hugh R. Blethen..... 316

CUTTING DIES.
Hoggson & Pettis Mfg. Co.....127, 306
Independent Die Co..... 374

CYLINDER MOULDS.
Eastwood Wire Mfg. Co....Back cover, 380

DECORATIVE CREPE PAPERS.
Neben Mfg. Corp..... 158

DIGESTER LININGS.
Stebbins Engineering & Mfg. Co..120, 362

ENGINES—VARIABLE SPEED.
Ball Engine Co..... 365

ENVELOPE MACHINES.
Schmidt Co., F. L..... 306

ENVELOPES.
United States Envelope Co.....68, 69

EVAPORATORS.
Buffalo Foundry & Machine Co....170, 180
Swenson Evaporator Co.....128, 129, 310

EXPORTERS.
Capen's Sons, Inc., A. M..... 358

FELTS.
Appleton Woolen Mills..... 312
Draper Brothers Co..... 356
Fitchburg Duck Mills..... 326
F. C. Huyck & Sons.....84, 85, 322
Orr Felt and Blanket Co.....104, 340
Shuler & Benninghofen..... 360
Waterbury Felt Co..... 312
H. Waterbury & Sons Co.....138, 139, 343

FILTERING SYSTEMS.
Hungerford & Terry, Inc..... 358
New York Continental Jewell Filtration Co. 310
Norwood Engineering Co.....80, 358
Scaife & Sons Co., Wm. B..... 314

FOURDRINIER WIRES.
Appleton Wire Works.....88, 380
Buchanan & Bolt Wire Co..... 250
Wm. Cabbie Excelsior Wire Mfg. Co. 4, 380
Cheney Bigelow Wire Works.....112, 316
Eastwood Wire Mfg. Co..Back cover, 380
Thomas E. Gleeson, Inc..... 312
Lindsay Wire Weaving Co.....54, 360

FRICTION CLUTCHES.
McMahon & Co..... 264

FRICTION CLUTCHES AND TRANSMISSION MACHINES.
Hill Clutch Co..... 76

GENERATORS AND MOTORS.
General Electric Co..... 328

GUMMED PAPERS.
Ideal Coated Paper Co..... 308
Nashua Gummed & Coated Paper Co. 100, 360

KNIVES.
Eagle Knife & Bar Works.....82, 346

KRAFT PAPERS.
Dryden Timber & Power Co., Ltd..... 226
Wausau Sulphate Fibre Co..... 234

LUBRICANTS.
Cataract Refining & Mfg. Co..... 30

MAGNESITE.
American Mineral Production Co..... 332

Page.

MAGNETIC EXTRACTOR.
Roland T. Oakes Co..... 374

MILL CONSTRUCTION.
Casper Ranger Construction Co..... 198

PAPER BAG MACHINES.
Lockport Machine Co..... 370
Potdevin Machine Co..... 306

PAPER BAGS.
Badger Bag & Paper Co..... 124
Continental Paper Bag Co..... 196
I. Gilman & Co..... 272
Schorsch & Co.....150, 365
Standard Paper Bag Co..... 208
Union Bag & Paper Corp..... 274

PAPER BROKERS.
Cohen, Victor 336

PAPER CORES.
Elixman Paper Core Co..... 360

PAPER CUTTERS.
Hamblet Machine Co.....42, 356
Oswego Machine Works..... 344
Smith & Winchester Mfg. Co.....192, 378

PAPER DEALERS.
Banker, John W..... 125
Carter Rice & Co. Corp..... 270
Chas. F. Hubbs & Co..... 266
La Laboiteaux Co, C. L..... 348
Old Colony Paper Co..... 370

PAPER DRYING REGULATORS.
Pickles, W. F..... 346

PAPER EXPORTERS.
Parsons Trading Co.Inside front cover, 304

PAPER FILLERS.
A. M. Meincke 24
Union Talc Co..... 379
United States Talc Co..... 363
C. K. Williams & Co..... 380

PAPER AND PULP MACHINERY.
Appleton Machine Co..... 379
Bagley & Sewall Co..... 252
Baker Manufacturing Corp..... 350
Beloit Iron Works 72, 73, 358
Black-Clawson Co. 176, 352
Carthage Machine Co..... 118
H. C. Clark & Son Machine Co..... 371
Claffiin Engineering Co.....142, 338
F. H. Davis..... 368
Dayton Beater & Hoist Co..... 341
Dillon Machine Co.....58, 59, 363
Dilts Machine Works..... 314
Downingtown Mfg. Co.....40, 41, 378
Emerson Mfg. Co..... 363
Glens Falls Machine Works..... 304
Holyoke Machine Co..... 22
Huband & Nash Co..... 308
Improved Paper Machinery Co..... 322
Kneeland Co., Inc..... 262
Mills Machine Co.....254, 368
Noble & Wood Machine Co.....86, 350
Norwood Engineering Co.....80, 358
Sandusky Foundry & Machine Co.... 92
Seybold Machine Co..... 352
Shartle Bros. Machine Co., The, 114, 115, 368, 371
Smith & Winchester Mfg. Co.....192, 378
Stebbins Engineering & Mfg. Co....120, 362
Union Iron Works..... 344
Voith Co., Inc., J. M..... 334

CLASSIFIED LIST OF ADVERTISERS

Page.

PAPER MANUFACTURERS.

Advertisers Paper Mills..... 258
American Writing Paper Co..... 123
Berkshire Hills Paper Co..... 282
Berlin Mills Co.....108, 308
Brown Paper Co., L. L..... 228
Bryant Paper Co..... 188
Carew Mfg. Co..... 240
Champion-International Co. 14
Collins Mfg. Co..... 336
Z. & W. M. Crane..... 248
Crane & Co..... 244
Crocker-Burbank Co. 230
Detroit Sulphite Pulp and Paper Co.... 160
Dexter & Sons, C. H..... 182
Diamond State Fibre Co..... 306
Eastern Mfg. Co.....216, 316
Esleeck Mfg. Co..... 194
Falulah Paper Co..... 298
Fitchburg Paper Co..... 200
Fox River Paper Co..... 278
Franklin Paper Co..... 363
Green Bay Paper & Fibre Co..... 146
Hammermill Paper Co.....238, 334
Hampden Glazed Paper & Card Co..... 288
Hampshire Paper Co..... 240
Haverhill Box Board Co..... 282
Hollingsworth & Vose Co..... 224
Howard Paper Co.....186, 340
Jessup & Moore Paper Co..... 232
Keith Paper Co..... 71
Marathon Paper Mills Co..... 56
McEwan Brothers 52
Megargee-Hare Paper Co..... 38
Merrimac Paper Co..... 210
Millers Falls Paper Co..... 132
Mississquoi Pulp & Paper Co..... 340
Mountain Mill Paper Co..... 302
Munising Paper Co..... 130
Newton Falls Paper Co..... 272
Niagara Paper Mills..... 367
Northern Paper Mills..... 292
Odell Mfg. Co..... 340
Old Berkshire Mills Co..... 276
Oglesby Paper Co., W. B..... 16
Orono Pulp and Paper Co..... 276
Oswego Falls Pulp & Paper Co..... 292
Oxford Paper Co..... 162
Parsons Paper Co..... 262
Pettebone-Cataract Paper Co..... 260
Port Huron Sulphite & Paper Co..... 298
Rhinelander Paper Co..... 246
Rising Paper Co., B. D....Inside back cover
Riverview Coated Paper Co..... 268
Smith Paper Co..... 290
Taylor-Logan Co., Papermakers..... 258
Thames River Specialties Co..... 286
Ticonderoga Pulp and Paper Co..... 268
Tileston & Hollingsworth Co..... 254
Warren & Co., S. D..... 220
Weston Co., Byron..... 204
Whiting Paper Co..... 260

PAPER MAKERS' SUPPLIES.

Morey & Co.....210, 304
Scandinavian - American Trading Co. 64, 312

PAPER SELLING AGENTS.

Allen Paper Co, A. C..... 290
Bermingham & Seaman Co.....280, 304
Browne & Stuart Co..... 278
Central Ohio Paper Co..... 302
Chicago Paper Co..... 296
Craig & Co., H. G..... 242
Diem & Wing Paper Co..... 280
Dillon & Barnes..... 367
Forsythe-Harding Paper Co..... 288
Forsythe Paper Co..... 256
Hudson Trading Co..... 286
McEnery Paper Co..... 296
National Paper Supply Co..... 266
Paper Manufacturers Co..... 379
Paper Mills Specialty Co.....70, 336
Peck Paper Co., D. F..... 250
Pulp & Trading Co.....102, 310
Whitaker Paper Co..... 214
Wray Paper Co., Douglas..... 206

PAPER STOCK.

Albenheimer, Louis H..... 363
Atterbury Bros., Inc.....140, 367
Atterbury & McKelvey, Inc..... 304
Edwin Butterworth & Co..... 343
Cantasano Bros., Vito G..... 304
Castle, Gottheil & Overton..... 367
Cookson, James 370
James Grundy & Sons..... 290
Gumbinsky Bros. Co..... 380
Hofeller & Co., Theodore..... 367
Keller Co., E. J.....174, 367
J. I. Lenhart 304

Page.

Marx Maier 367
Main Paper Stock Co..... 374
Mendelson Bros. Paper Stock Co..... 370
Pioneer Paper Stock Co..... 348
Salomon Brothers & Co..... 367
Smith, Edward J..... 360
Train, Smith Co..... 304
Western Paper Stock Co..... 348

PAPER TESTERS.

Ashcroft Mfg. Co..... 316

PAPER TUBE MACHINERY.

Dietz Machine Works.....12, 354
Grissinger Machine Works..... 360

PAPER AND TWINE HOLDERS.

Cutter Mfg. Co..... 212

PARCHMENT PAPER-VEGETABLE.

Kalamazoo Vegetable Parchment Co. 136, 370
Paterson Parchment Paper Co..... 172

PERFECTION BRONZE CASTINGS.

Eastwood Wire Mfg. Co....Back cover, 380

PERFORATED METALS.

Harrington & King Perforating Co.... 338

PULP PROCESS.

Castle, Gottheil & Overton..... 344

PULP SCREENS.

Orrman, H. L..... 222

PULP STONES.

Lombard & Co.....31, 308

PUMPS.

Shartle Bros. Machine Co., The. 114, 115, 368, 371

RAG CUTTERS.

Taylor, Stiles & Co.....20, 166

ROLL BARS AND BED PLATES.

Shartle Bros. Machine Co., The. 114, 115, 368, 371

ROSIN SIZE.

Arabol Mfg. Co.....106, 379
General Naval Stores Co..... 156
Paper Makers' Chemical Co.....134, 365
Vera Chemical Co..... 363

ROTARY BLEACHERS.

Biggs Boiler Works Co.....98, 99, 348

RUBBER COVERED ROLLS.

American Wringer Co..... 353

SCREENS.

Bird Machine Co..... 320
Harmon Machine Co..... 329
Waterous Engine Works Co., Ltd..... 236

SCREEN PLATES.

Central Mfg. Co..... 348
Wm. A. Hardy & Sons Co.....27, 346
Union Screen Plate Co.....32, 33, 314

SECOND HAND PAPER MILL MACHINERY.

Shartle Bros. Machine Co., The 114, 115, 368, 371

SIZING.

Feculose Co. of America 144
McMeekan Mfg. Co, David..... 374
Napco Corp. 67

SKYLIGHTS.

E. Van Noorden Co.....46, 310

SLITTERS AND REWINDERS.

Cameron Machine Co.....48, 370
Dietz Machine Works.....12, 354
Samuel M. Langton Co.....34, 379
Meisel Press & Mfg. Co..... 379

SPECIAL PAPER & PULP MILL MACHINERY.

Savery, Jr., Thos. H..... 170

Page

SPEED OR MOTION INDICATORS.

Bowsher Co., N. P..... 358

SPRINKLERS, AUTOMATIC.

Stebbins Engineering and Mfg. Co..120, 362

STARCH SIZING.

Corn Products Refining Co..... 354

STEAM TRAPS.

American Steam Gage & Valve Co.... 50

SULPHITE PULP.

Burgess Sulphite Fibre Co.....96, 350
Parsons Pulp & Lumber Co.....218, 304
Riordon Pulp & Paper Co., Ltd..... 341
Scandinavian-American Trading Co..64, 312

SULPHUR.

Union Sulphur Co.....202, 358

SULPHUR BURNERS.

Stebbins Engineering and Mfg. Co..12, 362

SULPHATE ("KRAFT" SODA) PULP.

Scandinavian-American Trading Co.64, 312

TABLETS.

Fall Mountain Pad & Paper Co..... 374

TANKS.

New England Tank & Tower Co....148, 367
A. T. Stearns Lumber Co..... 379

TIERING MACHINES.

Economy Engineering Co..... 370
New York Revolving Portable Elevator Co. 304

TIMBER ESTIMATES.

James W. Sewall..... 362

TOILET PAPER.

Ewing Co., H. Norwood 126

TOILET PAPER MACHINERY.

Dietz Machine Works.....12, 354

TRUCKS.

Stuebing Truck Co..... 294

TRANSMISSION MACHINERY.

Caldwell & Son Co., H. W..... 354

TWINES & CORDAGE.

Banker, John W..... 125

VACUUM DRYERS.

Buffalo Foundry & Machine Co....179, 180

VARIABLE SPEED TRANSMISSION MACHINERY.

Reeves Pulley Co..... 344

WALL BOARD CUTTERS.

Knowlton Co., M. D..... 360

WATERPROOFING PAPERS.

National Waterproofing Co..... 356

WATER SOFTENING & PURIFYING APPARATUS.

Scaife & Sons Co., Wm. B..... 314

WATER WHEELS.

James Leffel & Co..... 378

WINDERS.

Ticonderoga Machine Works..... 44

WOOD DISHES.

Oval Wood Dish Co.....164, 336

WOOD PULP.

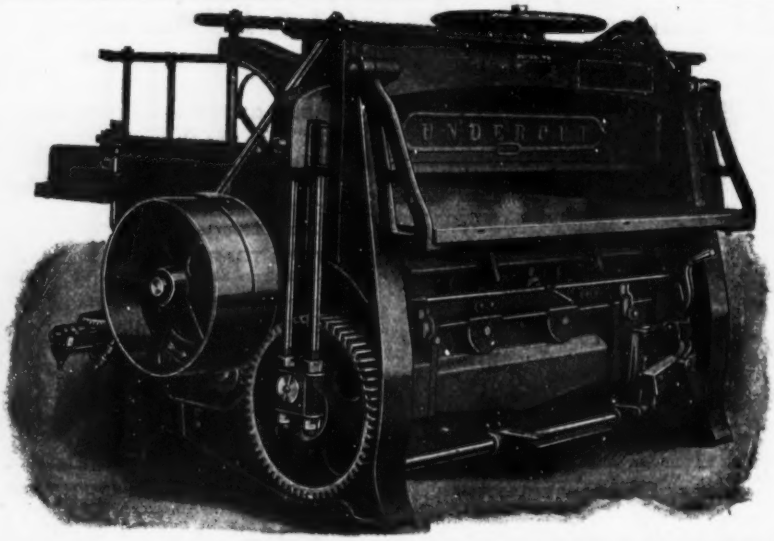
Scandinavian-American Trading Co.64, 312

WOOD PULP IMPORTERS.

American Woodpulp Corp..... 94
J. Andersen & Co.....102, 312
Ira L. Beebe & Co..... 367
M. Gottesman & Son.....9, 338
Interstate Pulp & Paper Co..... 310
New York Oversea Co., Inc.....190, 365
Pagel & Co., Inc., A. J..... 304
Price & Pierce, Ltd..... 304
Scandinavian-American Trading Co..64, 312

WOOD ROOM MACHINERY.

Ryther & Pringle Co.....78, 79, 332
Waterville Iron Works Co..... 306



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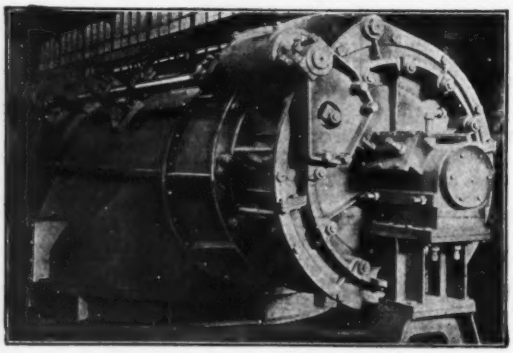

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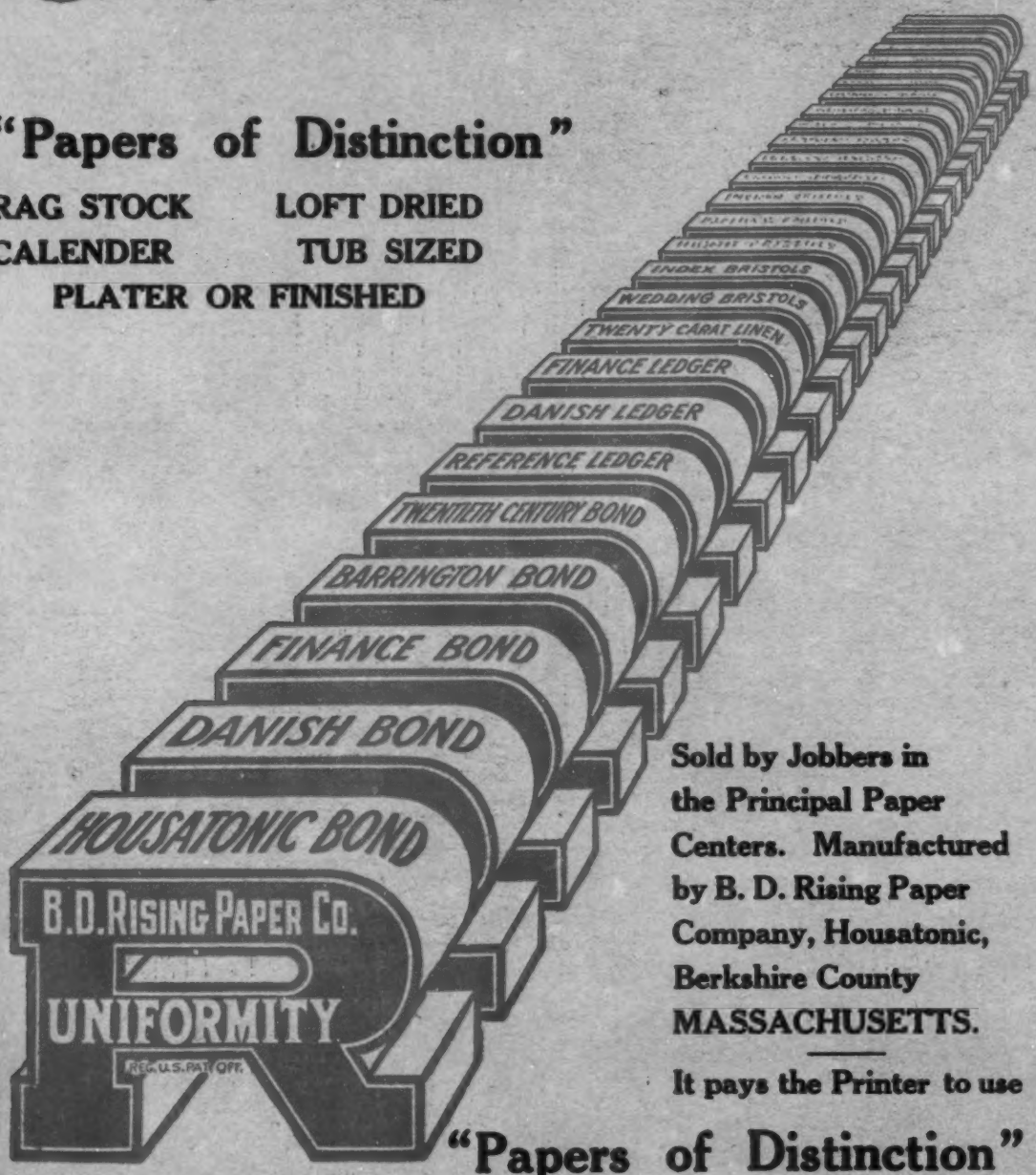

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